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ADDRESS
TO THE
ROYAL GEOGRAPHICAL SOCIETY
OF LONDON;

Delivered at the Anniversary Meeting on the 28th May, 1849,

By W. J. HAMILTON, Esq.,
PRESIDENT.

GENTLEMEN,—In attempting to lay before you a sketch of the progress of Geography during the past year, I must, as on a former occasion, claim your indulgence for the many imperfections and omissions which I have but too good reason to fear you will detect. From many of our usual correspondents we have received but scanty information; we have scarcely received any from Germany or Italy. This must no doubt be attributed to the political convulsions by which the greater part of Europe has been agitated during the period I have to review. Men's minds have been too much preoccupied by social discord and political strife to attend to the more peaceful occupations of literature and science. The motto, 'cedant arma togæ,' has been unfortunately reversed; and although many travellers and scientific wanderers in distant lands have continued to pursue their laborious investigations in the field, the lucubrations of those who, in the recesses of their closet, arrange and prepare for the public the discoveries of their more active brethren, have been unusually limited. Such materials, however, as I have been enabled to collect I now proceed to lay before you.

OBITUARY.

It is, however, my first duty—and on this occasion it is a painful one—to notice those of our associates whose loss we have to lament, and who by their various exertions have contributed to the advancement of the science for which this Society has been more especially

established ; and I regret to be compelled to add that we have this year to lament the loss of a more than usual number of distinguished comrades.

Amongst our foreign Associates we have first to lament the loss of the learned Letronne, whose death took place near the close of 1848. M. Letronne was Keeper of the French Archives, Member of the Academy of Belles Lettres, Professor of Archæology, and Administrator of the College of France, and also one of the first founders of the Geographical Society of Paris in 1822. He was one of the most distinguished amongst the many learned men who graced the list of our Foreign Honorary Members. The translator of the last book of Strabo, and author of numerous articles in the scientific publications of France, he ever took a lively interest in the progress of Geography itself, and of all the cognate subjects with which it is connected. It has been reported that the French Government intend to undertake the publication of the last two volumes of Greek Inscriptions found in Egypt, left in manuscript by M. Letronne. His death is a serious loss to the cause of learning in France, and has already been feelingly alluded to by M. Vivien de S. Martin in his report to the Geographical Society of Paris.

I have also to announce the death, within the last few days, of Dr. Honegger, our latest elected Corresponding Member. He was born at Donaueschingen in 1803. An engineer and draftsman of very considerable merit, he proceeded to Africa in 1831, where he spent many years in surveying different portions of the regency of Tunis, and some of the forts on the Mediterranean. During his residence in that country he discovered and collected many interesting antiquarian monuments, including inscriptions in the Phœnician character, some of which were bilingual, a portion being in Latin. With the help of these he was looking forward to deciphering the old Phœnician language, and had already succeeded in identifying several ancient sites.

First on the list of our own countrymen, we regret to find the name of the late Sir John Barrow. He will long be remembered by us as one of the original founders of this Society, as he was for many years one of its most active and most zealous promoters. Sir J. Barrow was born in June, 1764, at Dragleybeck, near Ulverstone, in North Lancashire, and showed an early taste for mathematics and surveying. His love of travel was evidenced in his youth by his quitting his employment as clerk in an iron-foundry for a voyage to Greenland in a whaler. Soon after his return he received the appointment of controller of the household in Lord Macartney's suite on the occasion of

his embassy to China. Here Mr. Barrow soon made himself acquainted with the language, literature, and science of China.

Mr. Barrow afterwards accompanied Lord Macartney, in 1797, as Private Secretary, on his important mission to settle the government of the Cape of Good Hope; and when Lord Macartney returned to England, was left by him Auditor-General of Public Accounts, Civil and Military. The state of public affairs compelled him to return to England in 1803, when he published the results of his observations, under the title of '*Travels in Southern Africa.*' In 1804 he published a second volume of *Travels*, and in the same year was appointed by Lord Melville Second Secretary to the Admiralty, a post for which he was well fitted by his peculiar turn of mind and the interest he had taken in our colonial and transmarine negotiations. The change of Administration in 1806 led to his removal, but his claims to a pension were recognised by his political opponents; in 1807, on the dissolution of the Grenville Ministry, he was restored to the Admiralty by Lord Mulgrave. He has himself stated that, from the 8th of April, 1807, to the 28th of January, 1845, he had continued without interruption Second Secretary to the Admiralty, under twelve or thirteen Administrations. In 1835 he was created a Baronet, and retired from public life in 1845, at the advanced age of 81.

During the many years of his official career his attention was ever directed to the advancement of the cause of science, and especially to the spread of geographical information. It is particularly with reference to two events during this period of his life that we now wish to contemplate his memory. First, for the important share which he took in 1830 in the formation of this Society, and the prominent manner in which he ever came forward to advocate its interests and its prosperity. It is hardly necessary for me to remind you that Mr. Barrow took the chair at the two preliminary meetings on the 24th of May and 16th of July, 1830, when the principles on which this Society was founded were first brought forward and embodied. You will find them in the first volume of our *Journal*, and you will there find evidence of the active interest taken by Sir J. Barrow in our earliest proceedings. The first article in our *Journal* was from his able and ready pen; and he ever showed himself as willing to support, as he was originally anxious to found a Society which he looked upon as likely to confer a lasting benefit on his country, and to convey to its members wholesome and useful information. Secondly, for the unwearied energy with which he constantly encouraged those Voyages of Discovery which have so greatly enlarged the bounds of science, and have added to our know-

ledge of the surface of our globe and of the physical phænomena displayed on it. He ever took a peculiar interest in those expeditions undertaken with the view of finding a North-west Passage, and urged the prosecution of voyages of discovery in the Arctic regions; and however much we may be disposed to regret the hitherto unsuccessful expenditure of labour—and, must I add, loss of life—we cannot but admire the steady perseverance which made him the constant and successful advocate with successive Governments of these expeditions.

I cannot conclude this notice without adding a list of the numerous works which Sir J. Barrow has published :—A considerable number of articles in the *Quarterly Review*; ten or twelve articles in the *Encyclopædia Britannica*; a *Review of the Life of Lord St. Vincent* in the *Edinburgh Review*; a *Life of Lord Macartney*, in 2 vols. 4to.; *Travels in Southern Africa*, 2 vols. 4to.; *Travels in China*, 2 vols. 4to.; *Voyage to Cochin-China*, 1 vol. 4to.; *Life of Lord Anson*, 1 vol. 8vo.; *Life of Lord Howe*, 1 vol. 8vo.; *Life of Peter the Great*, and *An Account of the Mutiny of the Bounty*, in the *Family Library*; a *Chronological History of Arctic Voyages*, 1 vol. 8vo.; *Voyages of Discovery and Research within the Arctic Region*, 1 vol. 8vo.

Another member of our Council whose loss we have to lament was Major Shadwell Clerke, F.R.S., and for a short time our Honorary Foreign Secretary, although the state of his health had not permitted him of late to take any active part in the discharge of these official duties. He entered the army in 1804, and served with great credit and gallantry in the Peninsular war. His promotion in the service was unfortunately checked by his being wounded before Burgos, which resulted in the loss of a limb, and his being compelled to retire on half-pay as unattached Major. After this he directed his attention to literary pursuits.

The talent with which Major Shadwell Clerke established and carried on the '*United Service Journal*,' the loyal and patriotic tone which he imparted to it, the energy with which he entered into every enterprise for the advancement of knowledge among his brother soldiers and sailors, particularly in founding the *United Service Museum*, will long be recollected by his friends, and will ensure the remembrance of that warm attachment, which subsisted between him and the numerous men of science and of letters with whom he was so intimately associated.

Another distinguished man whose loss we must deplore was Dr. Prichard, the late President of the *Ethnological Society*, before whom an interesting memoir of his life was lately read by Dr. Hodgkin, from which I may be permitted to extract a few remarks :—"Dr. James

Cowles Prichard was born on the 11th of February, 1786, at Ross, in Herefordshire. His parents were members of the Society of Friends, in whose principles he was himself educated. He was never sent to school, but his own ardent thirst for knowledge and his father's views enabled him at an early age to acquire a vast mass of practical and valuable information. Modern languages and history were his chief pursuits; during his residence at Bristol he employed himself in examining the peculiar characteristics of natives from different countries who frequented that port. After his father retired to Ross, Dr. Prichard was sent to Bristol to enter upon the study of medicine; thence he removed to Staines, and subsequently to London, where he pursued his medical studies at St. Thomas's Hospital, under Dr. Turner.

In 1806 he went to Edinburgh, and while a student in that university, first began to embody his ideas on the varieties of the human race. This subject became the favourite topic of all his meditation, and even of his correspondence with his father, who took a lively interest in his investigations. Having taken his degree at Edinburgh, he passed a year at Trinity College, Cambridge. It was shortly after this period that he separated himself from the Society of Friends, and joined the communion of the Church of England. He was thus enabled to enter the University of Oxford, where he became a Gentleman Commoner of Trinity College. In 1810 Dr. Prichard settled as a Physician at Bristol, and continuing his researches on the Physical History of Man, brought out the first edition of his work on that subject towards the close of 1813. Nearly thirteen years intervened between the publication of the first and second editions of this work. During this period he continued his medical studies, and published several works and articles in various periodicals. Besides medical works, I may mention a translation of Müller's General History, in conjunction with his friend W. Tothill; an article on the Mithridates of Adelung; three papers on the Mosaic Cosmogony in Tilloch's Journal; papers on the Universities, on the Zodiac, on Isis and Osiris, on Falm and Schlegel, besides continuing his researches on Egyptian mythology and history, and their relations to those of India.

In 1826 he published the second edition of his researches into the Physical History of Man. Besides much elaborate additional information on other subjects, the philological portion of the subject in this second edition was greatly enriched by a survey of the different relations of languages to each other, by the announcement of his discovery of the affinity of the Celtic languages with Sanscrit and other branches

of the Indo-European family, and by a tabular view of the known families of man, with their localities and languages, arranged according to their geographical distribution.

In 1831 Dr. Prichard published a separate volume on the affinities of the Celtic languages; and in two reports presented to the British Association for the Advancement of Science he has shown the importance of philology as one of the principal elements of ethnology. In 1838 he published an *Analysis of the Egyptian Mythology*. It was translated into German, with a preface, by Aug. Wilh. v. Schlegel. To the second edition of this work is added a critical examination of the remains of Egyptian chronology.

But while investigating the intricacies of the past, Dr. Prichard did not overlook the present wants and interests of the weaker and more oppressed branches of the human race. He hailed with satisfaction the formation of the Aborigines Protection Society, and was one of its early advocates. With this view he gave to the British Association for the Advancement of Science, at the meeting in Birmingham in 1838, a paper on the *Extinction of Races*.

On accepting the office of Inspector of the Lunatic Asylums, Dr. Prichard came to reside in London, and succeeded Sir Charles Malcolm as President of the Ethnological Society. After this he completed the third edition of his great work, now extended to five volumes, and considered his literary labours as accomplished. His death was occasioned by a feverish attack caught whilst engaged in one of his official tours, visiting the lunatic asylums in the neighbourhood of Salisbury, on the 4th of December, 1848. He shortly afterwards returned to London, but all the efforts of medical skill were unavailing, and he died on the 22nd.

To these we have to add Mr. James Morier, as sincerely lamented as he was universally known and esteemed. He was born in 1782, and his acquaintance with the literature and forms of Oriental life commenced at an early period. Having entered the diplomatic service, he went to Persia with Sir Harford Jones in 1807. In 1810 he was appointed Secretary of Embassy in Persia. In July, 1811, he sailed for Persia with Sir Gore Ouseley, and arriving at Bushire in January, 1812, he remained in Persia until October, 1815, having been appointed Minister Plenipotentiary at the Court of Teheran on the cessation of Sir G. Ouseley's embassy. Before leaving England, however, he prepared for publication an account of his journey home, entitled '*An Account of a Journey through Persia, Armenia, and Asia Minor to Constantinople, in the years 1808 and 1809,*' in which

is included some account of the proceedings of His Majesty's Mission, under Sir Harford Jones, to the Court of the King of Persia. The work was published in 1812. After his return to England he published, in 1818, an account of his second journey through the same countries; and in 1824 he published the first of that series of entertaining novels, which, from the graphic description he was well able to give of Oriental life and manners, were at once, and have ever since remained, so deservedly popular. In October of the same year he was sent on a special mission to Mexico, and after a short return to England, again sailed for Mexico in 1825, from whence he returned in the following year.

In Lieut.-Colonel Alexander Watt Robe we have lost a distinguished member of our Society, and the country has to regret a gallant and able officer. Lieut.-Colonel Robe, the second son of the late Colonel Sir William Robe, was educated at the Royal Military College at Woolwich. Shortly after obtaining his commission he joined the army in the Peninsula, was present at the passage of the Bidassoa and the Adour, and served with the Army of Occupation in France. On his return to England he was appointed to the Ordnance Survey, and was employed with Major-General Colby in the triangulations of the Highlands and Western Isles of Scotland. Prior to the publication of the Map of Lincolnshire, a revision of the greater part of the original plans became necessary, owing to their defective state. This laborious task was performed by Lieutenant Robe and some other officers of the Royal Engineers, with great rapidity and skill, and the Map of Lincolnshire was published in a comparatively short period and in very perfect condition.

Colonel Robe was attached to the Survey for a period of 18 years; during the latter part of the time he superintended the Drawing and Engraving Departments at the Ordnance Map Office in the Tower previous to its removal to Southampton. During his employment in this office it fell to his lot to attend to the numerous applications from newly-formed Railway Companies for correct data and distances; and by his valuable assistance and general information a great amount of labour and expense was in many instances avoided.

When Lieut.-Colonel Robe obtained the rank of Brevet Major he rejoined the corps of Engineers to take his turn of active professional duty. He was ordered to Newfoundland, where he died as Commanding Engineer Officer, after a residence of several years, deeply regretted by all classes of the community.

It is with regret that I have to add to this list the name of Lieut.

Ruxton, a gallant officer cut off in the prime of life, from whose love of enterprise and adventure we had a right to expect much service in the cause of geographical science. Lieut. Ruxton commenced his career in a regiment of Lancers in the service of the Queen of Spain, where his gallantry obtained him a decoration seldom conferred on so young an officer. On his return to England he was gazetted to the 89th Regiment, and proceeded to Canada; but a desire for a more active life soon prompted him to undertake an expedition of a most daring kind. He proposed traversing the African continent in the parallel of the Southern Tropic. For a correct estimation of this undertaking I must refer you to Sir R. Murchison's remarks from this chair in his Address in 1845. A short account of the cause of his failure and the almost fatal termination of his expedition was read before this Society in the end of the same year; the detailed account of it is inserted in the 'Nautical Magazine' for January, 1846. Lieut. Ruxton, nothing daunted, prepared to start a second time under the sanction and with the assistance of the Government, who applied to the Council of this Society for their opinion on the matter. Notwithstanding their favourable reply, so many delays and difficulties were interposed, that he was compelled to renounce for the time all thought of African discovery, and turned his attention to Mexico and the American continent. The result of this expedition was the publication of his lively and interesting work, entitled 'Adventures in Mexico and the Rocky Mountains,' which I alluded to in my Address last year. He subsequently published a series of papers in 'Blackwood's Magazine,' entitled 'Life in the Far West;' giving a graphic description of the life of the trappers, hunters, and others in those wild regions. Towards the end of 1847 he again started for America, with the intention of crossing the Rocky Mountains and exploring the country in the vicinity of the great Salt Lake. In May last he met with an accident from a fall while crossing the Rocky Mountains, by which he himself stated that he feared he had injured his spine; his death is reported to have taken place some time afterwards at St. Louis on the Mississippi.

Mr. John Biscoe is another of our Members whose loss we have to regret during the past year. His name stands prominently forward as one of the earliest recipients of the Royal Premium or Medal. In 1832 this honour was awarded to Mr. Biscoe for the discovery of the land now named Enderby's Land and Graham's Land in the Antarctic Ocean, the result of that enterprising spirit and love of discovery which led him, while prosecuting his whaling operations, to extend his

voyages far to the southward in search of land. An interesting account of his expedition will be found in the 3rd volume of the *Journal*, p. 105.

The late Earl Talbot is another of our Members whom we have lost during this fatal year.

In Mr. James Alexander we have lost a zealous friend and a liberal patron. For many years connected with Indian affairs, the wealth he had obtained was ever at the service of merit and of science. The Royal Geographical Society was greatly indebted to his unostentatious liberality, and the interest he took in our progress and prosperity was evidenced by an annual donation of 50*l.* for the Library, continued during several successive years.

I may be allowed also to record the deaths of two gallant officers who were not Members of this Society. They have been so frequently alluded to in these rooms, and have contributed so much geographical information to our *Journal*, that, when I mention the names of Lieut. W. Christopher and Capt. Carless, you will, I am sure, approve of my here alluding to them.

Lieut. Christopher was born in 1814; after entering the Indian Navy, he was employed for five years in the surveys of the coasts and islands of the Red Sea, and for the next five years in the surveys of the Maldivé Islands, the Gulf of Manaat and Chagos Archipelago, under Capt. Moresby. He subsequently surveyed the east coast of Africa, in command of the *Tigris* brig of war. It was then, that, having made a journey into the interior he discovered a large stream, which he named the Haines river, an account of which, with a chart, was published in the 14th volume of our *Journal*, p. 76. After this he was employed in the Indus flotilla under Capt. Powell, chiefly in Scinde, and afterwards in ascertaining by surveys how far up the rivers Indus, Sutlej, Chenab, and Ravee were navigable by steam. In July, 1848, he joined the force under Lieut. Edwardes operating before Mooltan, and received his death-wound while pointing out the way to a detachment of troops advancing to support the force already in the trenches.

Capt. Carless, whilst in command of a squadron of the Indian Navy in the Persian Gulf, was suddenly carried off by a severe attack of small-pox, in the 42nd year of his age, at Bushire, on the 16th of December last. Capt. Carless was highly distinguished in the service to which he belonged. He had been much employed in surveys, and many of the results of his labours have already been before the world in the pages of the *Geographical Journals* in India and in England. For some years he had the Aden and Red Sea station, and commanded

the Sesostris when the Cleopatra, alluded to in the Memoir hereafter mentioned, went down with all on board.

Amongst the other losses which the Society has sustained, I may mention the names of Mr. Bate, Mr. Edward Forster, Mr. Benjamin Harrison, Mr. George Hathorn, Mr. R. N. Hunt, and Mr. W. H. Lloyd.

OUR OWN LABOURS.

IN reviewing the papers which have been communicated to the Society at our Evening Meetings during the past session, I would, in the first instance, remind you of the valuable Memoirs we have received from Dr. Gutzlaff, describing, from the best authorities he has been enabled to consult, the different provinces bordering China Proper on the west and south-west, and which are more or less directly dependent on the Celestial Empire. We are still so ignorant of almost every detail respecting those districts, that although Dr. Gutzlaff had not the advantage of personally investigating them, we cannot but hail with satisfaction this result of his examination of Chinese authorities. We are assured from various sources that Chinese maps and statistics, although not possessing the mathematical accuracy of similar documents in Europe, are nevertheless deserving of confidence, and form a satisfactory basis for such geographical communications.

In the Memoir entitled the 'Geography of the Cochinchinese Empire,' Dr. Gutzlaff, after adverting to some of the principles of Chinese policy, describes the provinces of Tunkin, extending between China Proper and the country of the Free Laos, Yunnan, Dangtrong, Tsiampa, Kambodia watered by the river Mecom, the Moi territory, and the Laos tribes subject to the Annam Empire. He then gives a full account of its coasts and islands, and the numerous rivers, some of considerable magnitude, by which it is watered, a notice of its Fauna and its Flora, with description of the more valuable products of the vegetable world, its mines and minerals, and he concludes with a succinct history of the Annamen and Kambodian races, and some details of their commerce, exports, manners, and customs, their government and political condition, and their languages.

Another Memoir, which you have heard read, describes the country of the Free Laos. They are but little known: they consist of many tribes, extending from the mountains of Yunnan, in the north, to the Siamese Laos states, in the south. The moral character of these independent people is described in high and favourable terms; in contrast with the degraded state of the people by whom they are surrounded,

they are simple and uneducated. Their country abounds in wild mountainous districts, watered by numerous rivers, and containing much mineral wealth in its almost inaccessible recesses, besides precious stones of great value. They have hitherto resisted all the attempts of the Chinese at conquest, and under the guidance of their native princes have remained a peaceful people.

The next Memoir by the same author is a description of the frontiers of China towards Birmah. This embraces the mountainous district of Yunnan, north of the Laos states, and in which many of the great rivers which traverse the southern portion of this extensive peninsula take their rise. The inhabitants of one district are Mahometans, and have been treated with great cruelty by the Chinese and Chinese Laos. Towards the north the inhabitants merge in the Thibetian race. The mystery of the Tsampoo river is here alluded to, but no solution is offered, although a slight preference is given to the theory of its forming one of the principal tributaries of the Iravady.

A longer and more important Memoir of Dr. Gutzlaff is entitled 'Thibet and Sefan.' The first part of the paper is devoted to Thibet. Its boundaries are given according to Chinese accounts, and its natural features—remarkable in almost every respect, as compared with those of more favoured regions—are fully described. Its scanty vegetation, its dreary deserts, its mysterious lakes, the sources of rivers whose courses are yet unknown, its hardy yet superstitious inhabitants, its plains 14,000 feet above the sea, surrounded by lofty mountains, have been all brought under our notice. After describing the physical features of Thibet and the neighbouring districts of Shipkee, Ladik, &c., we have an interesting account of Lamaism, in its most flourishing condition, as exhibited in its priest-ruled strongholds of Cashilombo, and L'Hassa, under the despotic sway of the Banchin and the Dalai Lama. Here, too, are the sources of the Tsampoo or Dsangpo, also called Sampoo, respecting which we are still ignorant as to whether it falls into the Brahmaputra or the Irawady. The connection between Thibet and China, and the precarious hold possessed by the latter on the Thibetians, is explained, as well as the complicated policy by which the Chinese endeavour to consolidate their power. Even the mighty Yang-tze-kiang is traced into northern Thibet, where its waters are supposed to rise in the Hyberborean lake of Koko-nor.

Sefan is described as properly lying between Thibet and China. In the northern portion of this mountainous region are some of the

sources of the Yang-tze-kiang. Its mountains are wild and picturesque, the country generally desolate, and covered with perpetual snow, except in some of the intervening valleys. South Sefan, bordering on Birmah and Yunnan, is very little known; the savage tribes avoid all intercourse with strangers. The inhabitants of Sefan generally belong both to the Thibetian and Tartar races; its early history is mixed up with that of Thibet, subsequently with that of China. Dr. Gutzlaff's Memoir ends with an account of some of the authorities and works from which his information was obtained.

Mr. John Studdey Leigh, to whom we were already indebted for an account of the river Zambese, has given us an interesting description of Mayotta and the Comoro Islands, visited by him while passing through the Mozambique Channel, a few years back. They are situated near the northern entrance of that channel, between Cape Amber, the extremity of Madagascar, on the one side, and Cape Delgado, on the coast of Africa, on the other. Some of them have been already described, but attention has only lately been directed to Mayotta in consequence of the proposed colonization of it by the French.

Mr. Leigh ascended the peak which forms the most interesting feature in the scenery of the main island of Mayotta. The country near the coast is described as generally fertile and well wooded; towards the centre of the island all signs of habitation disappear. Few traces of animals were perceived; amongst the numerous birds, pigeons of more than one kind were abundant. The ascent of the peak was attended with great difficulty; the rocky nature of the ground increased the inconveniences occasioned by sharp-leaved cutting grasses and tangled creepers. Lemurs were found in great abundance near the summit, calculated at 2000 feet above the sea, and clothed with ferns of great beauty, and other unknown plants. The Memoir is interspersed throughout with many interesting details of the manners and customs of the inhabitants, from whom Mr. Leigh appears to have received all the hospitality and assistance he required.

From Mr. Edward Higgin we have received an account of the country, products, and appearance of the island of Rodriguez, situated near the centre of the Indian Ocean; it is one of the dependencies of Great Britain, and is at present under the jurisdiction of the Mauritius, from which it is distant about 8° to the eastward. It is reported to consist principally of granite, its extent being about 12 miles from east to west, and its width varying from 3 to 6 miles. The climate is mild, notwithstanding its tropical position, and the quantity of rain that falls is considerable. Vegetation is abundant and luxuriant, and

most European and tropical fruits come to perfection. The population as yet is small, being under 300, a mixed breed of African and Madagascar races, and in the lowest state of degradation. The island is partly surrounded by extensive coral-reefs not yet sufficiently surveyed.

Mr. James Skene has communicated to us an interesting paper on remarkable localities on the coast of Epirus. Even within the basin of the Mediterranean there is still much scope for the investigations of an enterprising geographer. The subject of comparative geography is far from being exhausted. Mr. Skene, by the unexpected discovery of a remarkable fountain or spring of fresh water rising up in the sea, resembling the *Deine* of Argolis, described by Pausanias, who says that a similar phenomenon existed near Chimerium, has most satisfactorily identified the site of the ancient harbour of Chimerium, in which the Corinthian fleet took refuge after its defeat by that of Corcyra, with the modern port of Agio Janni. Hitherto Chimerium had been identified with Arpitza. Mr. Skene also supposes Parga to represent the ancient Toryne, or Torone, where Octavianus anchored his fleet when proceeding to the straits of Actium to offer battle to Mark Antony. Another harbour, 5 miles south-east of Parga, now called Porto Phanari, is supposed, and not without good reason, to correspond with the Glykys Limen of the ancients.

Rear-Admiral Sir Francis Beaufort has communicated to us an interesting memoir by Captain Graves, well known for his long and active exertions in the Mediterranean survey, respecting the island of Skyros, one of the most southern of the Cyclades. In respect to its scenery and capabilities, this island is described as far superior to the rest of the group. Colonel Leake had already given an account of most of the antiquities of the island. Its productions are various, and for its size considerable in amount. During the last 15 years its population has increased from 2000 to 2630, yet arable land is so abundant as compared with the population, that one half of the cultivated portion of the island is allowed to lie fallow every year. The second portion of the Memoir is devoted to a nautical description of, and sailing directions for, the island. The coast is generally rocky and inaccessible, rendered more so by a group of small islands called the Pothies, the favourite haunt of pirates. Other small islands also lie off the coast in different directions. The highest portion of the island, Mount Cochelas, is said to be 2566 feet above the sea, surrounded by wooded hills. The only good anchorage is in the bay of Kalamitza. A few ancient remains are also described as existing, not in very good condition, in some parts of the island.

We have also received from the Hydrographical Office a full account of the volcanic group of Santorin, by Lieutenant Leycester, R.N., employed on the survey of the Mediterranean. The peculiar form and volcanic features of this group of islands have been long known, and have been well described by Von Buch and Ritter, the latter of whom has recently published a new map of the island, and also by MM. Boblaye and Virlet in the second volume, part ii., of the 'Expédition Scientifique de Morée,' undertaken by the French government. It has long been quoted as one of the best instances of a crater of elevation. The chief merit of the paper now under consideration consists in the great detail with which all the different portions of the shores and smaller islets have been examined and laid down, the statistics of the island recorded, and its antiquities described.

The principal physical features mentioned are the getting soundings in places where none had hitherto been obtained, and the confirmation of the gradual rise of a shoal near the centre of the bay, which may perhaps indicate the apex of a new cone rising up in the centre of the ancient crater.

In my address from this chair last year, I noticed the information we had received respecting the Russian expedition to the Northern Ural, under Colonel Hoffman. This year Admiral Lütke has communicated to us, through Sir R. Murchison, a slight sketch of its further proceedings in 1848. Leaving Tobolsk, Colonel Hoffman descended the Ob in a boat, and on the 27th of June reached the mouth of the Voiker, a small river rising in the Ural, and falling into the Ob in lat. $65^{\circ} 50'$. They ascended the valley of the Voiker, and having crossed to the western side of the range, proceeded north along the foot of the mountains. This part of the range is described as sterile, and almost entirely devoid of trees. The highest summit north of lat. 66° is not more than 3000 feet high. Here the expedition was in no small danger from an apparently trifling cause. The swarms of gnats so tormented the reindeer in crossing a low marshy district of nearly 2° , that the animals were rendered quite helpless; many died, and on one day they lost 20. On the 8th of August the travellers reached the banks of the Ussa, lat. $67^{\circ} 46'$; and on the 27th the banks of the Kara. Colonel Hoffman was surprised to find that about the parallel of Obdorsk the Ural chain turns suddenly to the east for nearly 30 or 35 wersts, after which it recovers its original direction of north and south, which it keeps to lat. $68^{\circ} 29'$, when it rapidly declines towards the marshes. From thence to the sea are merely low rocky hills, extending parallel to the sea from east to west in the form of dunes.

Colonel Hoffman ascended the hill which forms the northern limit of the chain, and is surrounded on three sides by low marshy lakes.

From Dr. Thomson, of Glasgow, we have received some extracts from letters of his brother, Dr. Thomas Thomson, assistant-surgeon on the Bengal establishment, and one of the commissioners appointed by the Indian government to settle the boundaries of Thibet with the agents of the Chinese government. These extracts give a description of a journey from Leh in Little Thibet to the Kara Korum Pass in the mountain range between Ladik and Yarkand. Some portion of this route up the valley of the Nubra had been already visited and described by Moorcroft. The route, although frequented by traders, is impassable during the greater part of the year. In one portion of it Dr. Thomson describes some magnificent glaciers, the passage of which was attended with much difficulty. Dr. Thomson describes one of the upland plains over which he travelled in this mountainous region as being 18,000 feet above the sea; this, he presumes, may be the highest flat plain on the globe. The elevation of the highest point of the pass was 18,600 feet, which on the 19th of August was free from snow; but glaciers had been crossed at lower elevations. The general height of the range is estimated at 20,000 or 21,000 feet. Dr. Thomson also made many botanical discoveries; but although he found several new species, the general character of the vegetation was that of Europe and North Asia. No vegetation was seen at the summit of the pass; but the number of flowering plants observed above 17,000 feet was 16, chiefly belonging to the family of the Cruciferae.

We have also received some observations by the late Captain Carless of the Indian Navy, on the course of the hurricane which occurred on the Malabar coast in April, 1847, and on the probable position of the unfortunate steam-frigate *Cleopatra* at the time, drawn up from information obtained from the log-books of various vessels. The result of the investigation has been to confirm the opinions already entertained respecting the rotatory nature of these violent storms.

Professor Chaix of Geneva has forwarded to us through our late secretary, Colonel Jackson, a paper on the valley and delta of the Nile, and its height in different places above the level of the Mediterranean. The paper is accompanied by a long series of barometrical and thermometrical observations made at various spots, and enters into the consideration of the question of the extent, to which the Nile now rises as compared with former times, and how far the general level of the country has been raised by the muddy deposit of the river. With regard to the latter question, the probability is that there has been no

change of any consequence during historic times either in the outline of the coast and of the mouths of the rivers, or in the extent of the delta itself. With regard to the question of the amount of rise in the waters of the Nile necessary to flood the country, which in the time of Herodotus was 15 or 16 cubits, equal to about 8 metres, it appears that this is the amount still requisite, and that the average actual rise of the waters most beneficial to the crops is 8 metres, thus proving both the accuracy of Herodotus, and that no change has taken place in the level of the country during the last 23 centuries, and dispelling the alarm of those who have feared that the land, gradually raised by the muddy deposits, would no longer be exposed to the beneficial influence of the annual inundation.

As connected with the prosperity of our distant colonies, and likely to lead to further researches in the interior, we have heard with pleasure of the establishment of cotton-plantations at Port Natal and its vicinity, the plant being indigenous, and having been also obtained from foreign seed, as communicated to us in a letter from Captain Stokes to the Admiralty.

We have received through the Indian government another interesting paper by Lieutenant Cruttenden, of the Indian Navy, describing the western or Edoor tribes inhabiting the Somali coast of N.E. Africa, and other tribes resident on the banks of the Webbi Shebeyli, commonly called the river Webbi. In the course of his Memoir, Lieutenant Cruttenden, besides a full account of the people, gives an account of the physical geography of the country and its valuable products, coffee, gums, frankincense, &c. Remains of ancient watercourses bear evidence of the former existence of inhabitants more civilised than the present occupiers of the land. Graves and gravestones tell the same story; but no tradition exists in the country as to the people by whom they were erected. The most interesting portion of Lieutenant Cruttenden's paper is a description of an expedition to the summit of the lofty range of Eyransid, nearly 6500 feet above the sea. This mountain range rises abruptly from the coast about 50 miles E. of Berbera, and then slopes gradually to the S.S.W. towards the celebrated valley of the Wadi Nogal, abounding in gums of every description. The vegetation on these mountains is described as truly magnificent, and as affording an inexhaustible field of research to the botanist. The Wursungeli tribe who inhabit this district are said to look upon theft with abhorrence,—an important feature in the examination of an unknown country. Lieutenant Cruttenden recommends travellers wishing to ascend the mountain range of the Jebel Al Wursungeli to make the

small port of Doorderi, E. of Ras Kori, their starting-place. The paper concludes with a description of Ras Hafoon, the most eastern point on the coast, and situated in the territory of the Mijjertheyn Arabs.

From Mr. Cooley we have had a communication entitled 'Brief Abstract of a Memoir on the Cinnamon Region of Eastern Africa,' in which he points out the importance of the aromatic productions and gums of various kinds of this part of Africa, and shows by a careful and critical analysis of ancient authorities the probability that the spices and incense consumed in such large quantities by the ancient people of Egypt, Greece, Syria, and Rome were derived from this part of Africa, and not from Arabia Felix, or Yemen, the country of the Sabæans, and that the Sabæans were in fact only the carriers, not the producers or growers of these aromatic drugs. He also points out the various causes of the changes which the commerce of the country underwent at different historic periods.

Mr. Cooley concludes by observing that, if the design be entertained of exploring this highly interesting country (the north-eastern horn of Africa), the labours of such an expedition, having for its object to become acquainted with the aromatic productions of the land, might be confined within the angle cut off by the Wadi Nogal, or to the limestone mountains of the Wur-sungeli and Mijjertheyn tribes.

A communication by Lieut. Gordon, on the discovery of rich seams of workable coal in the island of Formosa, has also been read to you. In the present day, when steam-navigation is extended all over the world, the discovery of new mines of coal in different quarters of the globe assumes an importance and an interest which the geographer cannot overlook. The future progress of navigation and discovery will become dependent on sufficient supplies of this material, and we therefore hail with satisfaction its discovery in such various and distant lands. Vancouver's Island, the Straits of Magellan, Borneo, the continent of India, the Presidency of Bombay, no less than that of Bengal, all abound with this most useful mineral.

Another communication read at one of our evening meetings relates to the erection of a lighthouse on Cape Agulhas, the most southern point of the African coast, about 100 miles E.S.E. of the Cape of Good Hope, and to the survey of the coast and numerous reefs of rocks in its immediate vicinity.

From Sir George Seymour we have received, through the Admiralty, a communication entitled 'Notes on the Islands of Quibo and Cocos, and two of the Galapagos.' Quibo is nearly inaccessible, from the

steepness of the cliffs and the tangled vegetation, the island being luxuriantly wooded, and abounding in every tropical production. Cocos is well supplied with wood and water, and plenty of fish. It is a picturesque island, but possesses no secure or extensive harbour. Chat-ham Island and Charles Island belong to the Galapagos group. The former used to supply the American whalers with terapins, or land tortoises. These animals have been nearly destroyed near the sea-shores, and the settlers are obliged to seek them in the interior, described as more fertile than the coast. In Charles Island these animals are also nearly exhausted. Here, too, tropical productions grow luxuriantly. This paper gives no confirmation of the report of coal having been found on this island, as stated by Dr. Coulter, but rather discountenances the idea.

In another communication forwarded to us by the Admiralty, Sir G. Seymour has stated that the harbour of Esquimalt, near the new establishment of the Hudson's Bay Company, Fort Victoria, in the Straits of S. Juan de Fuca, was described to him as capable of receiving ships of the line in security, and as a valuable addition to the resources of the island.

A report has also been received from Lieut. Lysaght, R.N., respecting the trade and resources of the river Nuñez, communicated to us by the Admiralty, and containing some statistical information interesting in a commercial point of view, as well as accounts of the native tribes inhabiting or trading on the banks of the river.

An interesting communication was lately read from Lieut. Forbes, R.N., describing the discovery of a written language in use amongst the natives on part of the west coast of Africa, at Bournea, near Liberia. It is the Vei language, resembling that of the Maudingos rather than the Kroomen's. Some slight vocabularies of this language, as well as its numerals, were already known to African philologists and missionaries. The writing is reported to be of recent introduction, and is supposed to have been brought down from the interior: it is a phonetic language, and, as in Chinese, the different characters represent syllables. It is impossible to overlook the importance of such a discovery, and the advantage to which it may be turned in introducing civilization and Christianity amongst the negro populations of Africa.

A long and elaborate paper by Capt. Vidal, R.N., giving a detailed description of Santa Maria and the Formigas Rocks, in the Azores, has also formed the subject of one of our evening meetings.

EUROPE.

In detailing the progress of geographical science during the past year, I have adopted the same arrangement as on a former occasion, believing it to be one which best meets the objects of such an Address as the present, and that it has already met with your approbation. I have endeavoured simply to describe the facts which have come under my notice, and have generally avoided introducing any opinions of my own. Notwithstanding many omissions, of which I am but too well aware, I fear it has extended already to an unwarrantable length.

The survey of our own coasts, interrupted for a while by causes alluded to in my last Address, has, during the past season, been actively resumed, and is now rapidly proceeding. We are informed that Capt. Sheringham, having completed the south side of the Isle of Wight, is now extending his work along the coast to the westward. Capt. Bullock, having finished the coast of Essex and examined that of Kent eastward of Dungeness, is now continuing his survey from Dungeness towards Beechey Head. Commander Otter, having last season surveyed Stornoway, Loch Inver, and the northern part of the Minch, is now employed in that channel connecting the shores of Scotland with the Hebrides.

In consequence of important changes which have taken place in the banks and passages of the Bristol Channel, since Capt. Denham's survey, Capt. Beechey has been employed in its re-examination. He has also made many interesting observations on the tides in continuation of those already made in the Irish Channel, an account of which has been published in the *Philosophical Transactions*. He will, during this season, resume his labours in both these departments.

In the prosecution of the survey of the east coast of Ireland, Capt. Frazer has recently been engaged on the coast between Cape Carnsore and Waterford, and in the survey of Waterford itself. He will, during this season, continue his operations along the coast to the westward. Capt. Wolfe has recently been employed on the south coast of Ireland, between the Old Head of Kinsale and Mizen Head. He will this year remove to Valentia, to examine that harbour and its adjacent coast. Commander G. A. Bedford, having carried his operations as far northward as Sline Head, will proceed towards Clew Bay; while Commander Beechey, having completed the examination of the inner portion of Clew Bay, with its numerous islets, will proceed along the coast towards

Achil Head ; and lastly, Commander Williams, having completed the survey of the Isle of Man, is now removed to Cornwall, where he is commencing the examination of Mount's Bay.

Hydrographical Office.—Many valuable charts have been published by the Hydrographical Office, including various parts of the Mediterranean, the West Indies, the Canaries, England, Ireland, Australia, North America, New Guinea, West Coast of Africa, the Maulmain River on the coast of Tenasserim, Labuan, &c.

Ordnance Survey.—The Ordnance Survey of Lancashire, on the 6-inch scale, has made considerable progress ; 29 sheets have been published since May last, making 69 in all published up to the present time. In the meantime the survey of the 1-inch scale has been suspended until the larger one of Lancashire shall have been completed ; but it is not intended, as was once supposed, to supersede the 1-inch by the 6-inch scale for the North of England : the public advantage of these maps has been immensely increased by the great reduction in their price lately made. This result has been mainly brought about by the application of the electrotyping process to the multiplication of the copper plates at a very trifling cost.

Considerable progress has also been made in the 60-inch Town Survey of England. It is, I believe, generally known that the principal towns in the country are to be surveyed on this scale. Of Liverpool 26 sheets are published out of 50, of which the whole town will consist. Those of Chorley, Clitheroe, and Haslingden are complete ; of Windsor and Southampton the plans are already drawn. The Survey of London has also made considerable progress. When completed it will cover about 900 sheets, 3 feet by 2 feet. They are admirably executed ; and, when we consider the scale, must afford facilities for improvements in building and drainage at a comparatively small preliminary expense never before estimated.

Maps.—Some neat and useful maps for the education of the poor have been lately published by the National Society, under the superintendence of the Rev. S. Clark, Vice-Principal of St. Mark's College. Amongst these I may mention a set of six statistical maps of England, of which four are already published. Of these six maps, two are devoted to the physical geography of England and Wales, two to the political geography of the British empire, and two to its historical geography. Amongst them is one showing the British possessions on a uniform scale.

Another series, published by the same Society, consists of large skeleton maps, showing the great natural features of the country, and

indicating different elevations of the land by different tints, so shaded as to leave the high land nearly white. Mr. Clark has also published a new and useful series of outline maps and blank projections for the use of schools.

Mr. Petermann has nearly ready for publication two maps, forming the first part of his Geographical and Statistical Atlas of the British Empire. The maps are, 1. A hydrographical map of the British Isles, exhibiting the geographical distribution of the inland waters. 2. A statistical map of the British Isles, showing the distribution of population; the execution is excellent, and the information is brought down to that of the last returns; the scale is $\frac{1}{1000000}$. Mr. Petermann deserves the greatest credit for undertaking a work of so much importance and requiring such unwearied exertions; he is especially entitled to the support of the British public. The advantages of this application of geographical science to the purpose of statistical information are as yet hardly sufficiently appreciated in this country; the principles on which Mr. Petermann has proceeded, and the objects he has had in view, are recorded in a paper by him read before the British Association at its Meeting at Swansea last year. Both Alexander von Humboldt and Professor Ritter have expressed themselves as highly pleased with Mr. Petermann's performances.

Physical Atlas.—I noticed in my Address last year the publication of the first number of a Descriptive Atlas of Astronomy, and of Physical and Political Geography, by the Reverend Thomas Milner, assisted by Mr. Petermann for the physical maps. I am happy to be able to announce that seventeen parts are now published; the amount of information they contain is remarkable for their size and extremely moderate price. The letter-press by which they are accompanied contains many interesting chapters on those subjects more immediately connected with physical geography:—viz. the solar system, celestial and terrestrial phenomena, the sidereal heavens, physical geography, including geology, hydrography, and meteorology, organic life, including as yet botanical geography, and zoological geography.

I have also to announce the publication of the three first numbers of another Atlas of Physical Geography, also conducted by Mr. Petermann, with descriptive letter-press, embracing a general view of the physical phenomena of the globe. It is to be completed in six numbers. It should, however, be observed that many of the maps are the same as those published in the last-mentioned work; and that the letter-press, as far as it yet goes, is only an improved edition of those chapters on geology and hydrography mentioned in that work.

Another Physical Atlas is in course of publication in Edinburgh, by Mr. Alexander K. Johnston; being, in fact, reduced from the large edition, the completion of which was announced last year. It is intended for the use of colleges and academies, for which its size, imperial quarto, is well adapted. The first two parts are already published, and their execution is excellent. It is called 'The Physical Atlas of Natural Phenomena.'

The same talented author has also recently published a neat and compact Atlas to illustrate Alison's 'History of Europe.' The size is small and convenient; which, as the districts represented in each sheet are generally of limited extent, does not affect the clearness and precision of detail necessary for such a specific work.

Amongst the many adaptations of art to the delineation of physical geography none are more interesting or likely to prove more useful than the modelled relief maps of Mr. Carrington, an engineer many years employed in the surveys of New Zealand. This gentleman, besides several smaller models, has made one of the country round Manchester and the Peak of Derbyshire, on the exact scale of the Ordnance Survey, taking indeed the Ordnance map as the basis of his construction; the vertical scale, as compared to the horizontal scale, is only as 6 to 1. Mr. Carrington's system is described as being extremely rapid in its execution, and it is impossible to imagine any method by which a more correct idea of the different features of the country can be obtained. It would, indeed, be a work worthy of our country if the Government would imitate the liberality of the King of Prussia, and so far, at least, as the Ordnance Survey has been completed, would direct the modelling of the whole kingdom on the same scale. Some of Mr. Carrington's smaller portions are on the scale of 20 chains to an inch: a scale sufficient for the introduction of the smallest physical character, and adapted to all purpose of agricultural economy.

Captain Ibbetson's model of the Undercliffe, Isle of Wight, is well known for its beauty and correctness. I am happy in announcing that he has now finished a small model of the Isle of Wight; also a large one of the same locality, as well as one of the county of Shropshire, which are for publication at very moderate prices.

Mr. Mollison has published a planisphere on a new and ingenious principle; so contrived, by means of moveable circles and graduated indices, as to find and point out at once the relative positions and appearances of the stars at given hours and days, as well as the declination and azimuth of the different celestial bodies; besides giving

much information brought together in a small and compendious form.

I have much pleasure in announcing the publication of a second edition of Mrs. Somerville's interesting volumes on Physical Geography; an edition by which the claims of the authoress to our thanks are very materially increased. The additional matter contained in these new volumes amounts very nearly to a third of the whole work. Many portions of it have been entirely re-written, and some new chapters have been introduced on subjects of great interest. Amongst these I may perhaps be permitted to mention some of the most important:—

The introductory chapter in the first volume is enlarged by many important observations respecting the position of the earth in the solar system, and the laws by which that position is maintained; the description of the surface of the earth is further elucidated by an account of mineral veins and fissures; in addition to which we have an entirely new chapter on the nature and character of mineral veins, and the various occurrences of metalliferous deposits, and the different circumstances and products connected with them. The physical features and flora of Central and South America are enriched with a mass of new and valuable information; and particularly I may mention that the whole question of meteorology is discussed in an admirable and philosophic manner. Indeed, it may be safely asserted that there is not a chapter in the book which does not bear evidence of the attention which has been paid to it, and of the desire shown to render the work really useful, by bringing up the information on every subject to the latest researches.

We learn from Paris, through Colonel Lapie, under whose superintendence the topographical and geographical labours of the Ministry of War are carried on, that the 13th number of the Map of France, consisting of 10 sheets, has just been completed, making 130 sheets already published; 49 more are being engraved, and 19 are laid down and ready for the engraver. There only remain 60 sheets to be laid down to complete the work. Preparations are also making for publishing this map on a reduced scale of $\frac{1}{320000}$, in 35 sheets, many of which are already engraved.

A subterranean map of Paris is also in course of construction, on which are represented all the labyrinthine galleries of the catacombs and quarries.

I alluded last year to a work about to be published by M. Jomard,

under the title of 'Monuments of Geography,' being a collection of maps of the Middle Ages. The Viscount de Santarem, one of our corresponding members at Paris, has just published the first volume of a work of a somewhat analogous description: it is entitled 'Essay on the History of Cosmography and Cartography during the Middle Ages, and particularly on the Progress of Geography after the great discoveries of the fifteenth century: to serve as an introduction and explanation to the atlas composed of mappemondes and portulans, and other geographical monuments from the sixth to the seventeenth century.'

The first numbers of this atlas were published in 1843. M. de Santarem has forwarded to us a list of all the maps subsequently published, forming a collection of fifty-six curious documents, commencing with the tenth and extending to the sixteenth century. Those of the tenth, eleventh, twelfth, thirteenth, and fourteenth centuries are almost exclusively mappemondes taken from ancient manuscripts preserved in European libraries, most of them of great interest. Amongst them are six card compasses, or tables of winds (*roses des vents*): two of them are taken from a manuscript of the tenth century. The last item in the list is as follows:—"56. Four parts of the famous mappemonde of Fra Mauro, of 1459, published for the first time of the same size as the original, with its numerous legends. The fifth part of this large mappemonde is now in the engraver's hands, and will shortly appear. It forms the first geographical monument of the third part of my atlas, which contains a series of the monuments and mappemondes subsequent to the great discoveries of the Middle Ages."

Another work, very similar in character to those of M. Jomard and Viscount Santarem, has also been announced, entitled '*Géographie du Moyen Age*,' by J. Lelewel. The work consists of 99 maps in folio, engraved by Mr. Lelewel from the originals in various libraries on the Continent, some of which, particularly from the twelfth to the fifteenth century, are described as being of peculiar interest.

We learn from the *Comptes Rendus* that several French travellers about to proceed to various parts of the American Continent have applied to the Academy of Sciences for instructions as to those scientific investigations it might be desirable for them to undertake. Amongst them are M. Rossignon, about to depart for Central America; M. Chayet, for California, to examine the geology and mining industry on the part of the Government; M. Durocher, also going to California; M. Petit, to Chili; M. Desmadryl, to travel in the west part of the Cordillera of South America; and M. Duplessis, in Texas.

Switzerland.—Considerable progress has been made during the last year in the national survey of Switzerland, carried on under the superintendence of General G. H. Dufour. In addition to the two sheets (Nos. 14 and 17) already published, five more (Nos. 2, 6, 7, 10, and 21) have been completed, and are ready for publication. They comprise Basle, Soleure, Porentrui, the west of Neuchâtel, part of Savoy, part of Franche-Comté, and the extreme eastern parts of Grisons. Six more sheets are in a very forward state (Nos. 8, 9, 3, 11, 12, and 18), containing Schaffhausen, Aargau, the Simplon, Zug, Neuchâtel, Freyburg, Yverdun, Bern, Zurich, Glarus, and Schwyz. This survey has brought out many interesting facts regarding the physical geography of the country, as the height of the rivers at different points of their course, and consequent inclination, and the levels of various lakes above the sea. The eastern boundary of Switzerland has also been removed farther eastward than it had been placed in previous maps, and the canton of Grisons is thus found somewhat to exceed in extent that of Bern, hitherto deemed the largest in the Confederation.

Numerous other maps, partly geological and partly topographical, have been published during the last few years. I can only mention a geological and topographical map of Glarus, by Escher, on a scale of $\frac{1}{140000}$; another of the same canton, with four vertical sections, by Messrs. Oswald-Heer and J. Blumen-Heer, at St. Gall, 1846; a map of the mountains north-east of the lake of Thun, presented last year by M. Rüttimeyer at the meeting of the Society of Naturalists at Soleure; five geological maps of the Jura, in different cantons—that of the canton de Vaud, by M. Lardy, is not yet completed. The scale of the whole Jura collection will be $\frac{1}{60000}$.

Germany.—Maps.—The progress of the maps undertaken by the different governments of Germany has been much delayed by the political state of the country. We learn, however, that the following sheets have been published during the last year:—Prussia, four sheets (40 to 43) of the survey of the Rhine provinces, and one sheet (25) of that of the province of Brandenburg; Grand Duchy of Hesse, two sheets, comprising the district of Rennershausen; Saxony, twelve sheets of the geognostical map; Bavaria, three sheets of the great topographical atlas in 100 sheets.

A new edition of Reyman's large map of Germany, in 200 sheets, is about to be published in Glogau.

In the Ordnance Office of Berlin an attempt has been made to print the maps in different colours, to show the different features of the ground, and a proof of one of these maps, which we have seen, shows

how successful they have been in arranging the different colours. The plan might be carried still further, and might be applied with the greatest advantage in the case of geological maps.

Amongst the numerous maps published or completed during the past year in Germany, I may mention Spruner's 'Hand Atlas, for the History of the States of Europe from the commencement of the Middle Ages down to the present time,' consisting of 73 coloured maps, and more than 100 subordinate maps, plans, &c. This atlas is called the Second Part, because the author has been induced by numerous applications to add two more parts, to complete the series, which will then be—Part I., Atlas of the Ancient World, consisting of 26 maps; Part II., the Historical Atlas, just mentioned, of 73 maps; and, Part III., Atlas for the History of Asia, Africa, and particularly America, from the commencement of the Middle Ages, to consist of 8 maps. The two first livraisons of Part I. are published.

Also Stieler's Atlas, consisting of 83 maps.

In 1848 a new edition of Stieler's map of Germany, including Holland, Belgium, and Switzerland, and the surrounding counties, in 25 sheets, on a scale of $\frac{1}{3000000}$, has been published.

Berghaus' map of Asia, in 18 sheets, is nearly complete, all but sheets 1, 3, and 4; it is a work highly to be recommended.

E. v. Sydow's Methodical Hand Atlas, for the scientific study of the earth, of which 26 sheets are already published.

E. v. Sydow's School Atlas, in 36 maps, in 1848, is an excellent work, and well executed, at a most moderate price.

Besides these, the great physical atlas of Berghaus may now be said to be complete by the publication of the 17th and 18th livraisons during the past year; No. 17 completes the ethnographical series of the work, and No. 18 gives what is called the anthropological portion, as the conclusion of the whole work. It consists of four sheets, representing the distribution of the human races, and embracing the following interesting subjects:—Food; population in agricultural districts; remarks on the physical nature of man; distribution of diseases over the globe; influence of climate; course of cholera; clothing of different races; religion; occupation and governments according to their different forms.

Nor must I here omit to mention the Geographical School Atlas of Rudolph Gross; it consists of 21 maps, executed in coloured lithography with a degree of taste and finish which deserve the highest praise. Different heights are represented by different colours; the consequence of which is, that at the very first glance the physical fea-

tures of the country are perceived with almost the same distinctness and sharpness of outline as in a relief map.

Another map, which may almost be looked upon as the direct result of the political agitation of Germany, is the 'Nationalitäts Karte von Deutschland,' published by Kiepert, at Weimar, 1848. The different branches of the German or Teutonic race are represented by one set of colours, only slightly varying from each other, while another set represents the different Slavonian races by which they are surrounded on the east, and another represents the Lombard and Frankish nations on the south and west.

I must also notice the relief maps of M. Ravenstein. The art of constructing these useful and interesting maps has now reached a high degree of perfection. M. Ravenstein has presented to the Society an atlas of eight different maps in relief, ingeniously arranged so as to occupy a small space. He has also constructed for the King of Prussia a relief map of the Rhine country, including the Duchy of Nassau, on a scale of $\frac{1}{300000}$, and covering a surface of 12 feet by 10; and he is about to publish a similar map of Germany on a smaller scale of $\frac{1}{300000}$, of which the first part, comprising the Rhine Valley from Basle to Mayence, has lately appeared.

The lovers of historical geography will find some interesting remarks in Dr. Schmeller's work on Valentine Fernandez Alemão, and his collection of notices on Portuguese discovery in Africa and Asia before 1508, contained in a Portuguese MS. in the Royal Library at Munich.

The interesting work by Bernhard Cotta, entitled 'Letters on the Kosmos of Humboldt,' of which the first part only has appeared, deserves a passing notice. The object of the author, as stated by himself, has been to extend still further the influence of the Kosmos by carrying out its principles in detail, and by explaining with greater accuracy its broad generalization.

Spain.—From Spain we learn that Mr. Edward Chao is about to publish in one volume a work entitled 'Cuadros de la Geografia Historica de España,' or Sketches of the Historical Geography of Spain, from the earliest historical times down to the present day, with many maps of different kinds. The 'Diccionario universal de Historia y Geografia' is completed. The 10th and 11th volumes of Don Pasqual Madoz's 'Diccionario Geografico Estadistico Historico de España y sus posesiones de Ultramar' have been published, bringing down the work to the letter M. They have also published at Madrid charts of the coast of France, and of the sea of China, with the river and town

of Canton; a plan of Cabañas, in the island of Cuba; geographical maps of the provinces of Madrid, Alava, and Guipuscoa; and plans of Madrid and Seville.

Portugal.—In Portugal Mr. Frederic Perry Vidal has just published a geographical map of the kingdom of Portugal, corrected and enlarged, and divided into provinces, districts, and councils, its size being 48 inches by 28, to which the author has added not only the distances between the different towns in the eight provinces, but also the population of each town.

Sardinia.—We have received during the past year three more sheets of the map of the kingdom of Sardinia, published by the Etat Major. The work was to be completed in 1848 by the publication of the sheets of Chambéry and Geneva, which will also be forwarded to us.

I have not been able to obtain any information respecting the progress of the different Geographical and Statistical Dictionaries publishing in Italy, except the single fact that Ripetti's Dictionary is finished.

Sicily.—I have to announce the publication of the third part of Sartorius v. Waltershausen's Atlas of Mount Etna. The admirable execution of the former parts of this work must ensure a hearty welcome to the appearance of any subsequent portions.

Dalmatia.—There are few parts of Europe so little known or visited as the countries lying between the Danube and the northern frontiers of Greece. Few countries also are so difficult to examine, or offer so many real dangers to the scientific traveller. We therefore hail with gratitude Sir Gardner Wilkinson's entertaining work on Dalmatia and Montenegro, containing an account of a journey to Mostar, in Herzegovina, with remarks on the Slavonic nations. This work also contains some interesting remarks on the origin of the religion and customs of the Slavonians and other people who inhabit these regions, a description of the interesting remains of antiquity, an account of the Slavonian dialect and languages, with remarks on the Turkish character in these provinces, accompanied by excellent illustrations.

Mr. Paton's work on a nearly similar region must also be mentioned, entitled the 'Highlands and Islands of the Adriatic; including Croatia and the southern provinces of Austria.' It contains many valuable contributions to our stores of geographical and ethnological knowledge.

Levant.—We are indebted to the Hon. R. Curzon for the publication of an account of his visits to the monasteries of the Levant. The

work is no less interesting for the light and agreeable style in which it is written, than for the amount of information it contains. I may particularly mention his visit to Mount Athos, in the description of which and of the surrounding country, so rarely visited by English travellers, will be found much to interest the geographer as well as the historian and the antiquary.

Bosphorus.—Baron Moltke has published a very neatly executed lithograph map of the Bosphorus in 4 sheets, comprising the northern fortified portion, from the castles near Constantinople to the light-houses at the entrance into the Black Sea.

Surveys.—The survey of the islands of the Archipelago, so long conducted under the able superintendence of Captain Graves, and which was nearly completed, has been for a while discontinued in consequence of an application for the survey of Cyprus, to which Captain Graves will now direct his attention. We may look forward to many interesting discoveries on these classic shores, from the talent which Captain Graves has always shown in the investigation of the relics of antiquity and in the prosecution of comparative geography.

Colonel Lapie has published and forwarded to our Society a new edition of his general map of Turkey in Europe and of Greece, in 15 sheets.

ASIA.

Russia.—Turning our attention towards Asia, we find the spirit of geographical investigation as active and as enterprising as ever. Few travels have of late caused greater interest in a purely scientific point of view than Adolph Erman's 'Reise um die Erde.' The first two volumes were mentioned some years ago from this chair by my friend Sir R. Murchison, who, in his Address, published in the 14th volume of our Journal, entered fully into Prof. Erman's merits when delivering to him the gold medal awarded by the Council, and I had myself the pleasure of announcing last year the appearance of a translation of them by Mr. Cooley. A third volume has since been published by Prof. Erman, containing an account of the coasts and sea of Ochozk and of his journeys to Kamtschatka in 1829. The map by which it should have been accompanied has unfortunately been delayed by causes over which the author had no control, and without it there is some difficulty in following his route through these unknown regions. The work is illustrated by several interesting plates.

Some idea of the difficulties of the country may be formed from the fact that the reindeer could only travel at the rate of one geogra-

phical mile in 157 minutes, owing, as our author says, to the nature of the ground between the Aldan and the great Ochota, between long. 133° and long. 140° E. of Paris, and in lat. 59° to 62°. Here they crossed the Capitan mountain, 3800 French feet above the sea. The characteristic forms of the mountains, the natural productions of the soil, the tidal phænomena, and those connected with meteorological and atmospherical changes, are fully entered into and described. Those observed at Ochozk are particularly interesting. The mean temperature during the summer was considerably warmer than at other places in the same latitude; at the same time the mean atmospheric pressure is much less than on the European coasts; a clear sky is rarely seen, and an almost perpetual mist prevails. The house-swallow only makes its appearance on the 2nd of June, whereas at Paris it is seen on the 10th of April, showing a remarkable dependence on the mean temperature of the air at both places; that at Ochozk having by the 2nd of June reached + 6° 9', that of Paris being already on the 10th of April + 7° 42'.

From Ochozk Professor Erman crossed over to Kamtschatka, thence along the Tigil coast, and over the central mountain-chain to Jelowka. Amongst the Kamtschatka inhabitants of Sedanka he remarked a peculiar physical feature, viz., the extreme smallness of their noses, particularly of the women, and suggests the possibility of the usual development of this organ having been providentially checked because it could only convey to its possessors most disagreeable impressions. A want of smell would be a real blessing to these ichthyophagic tribes.

Amongst the interesting mineralogical or geognostic features of Kamtschatka may be mentioned the crater of Baidar, from whence a stream of lava has flowed over the slightly inclined ground, so recent in its appearance as to be mistaken for an eruption of last year, were it not for the rich verdure and the aged trees covering the swelling undulations on either side, which have been thrown up by the liquid lava as if turned over by a ploughshare. Volcanic phænomena abound in Kamtschatka, and the following chapters are taken up with an account of expeditions to the volcanoes of Schiwelutsch and Kliutschewsk, still partly active; the concluding chapters are devoted to an account of the navigation of the Kamtschatka rivers, and a journey to the southernmost point of the peninsula.

Professor Middendorf's name is so well known to all who frequent these rooms for his interesting journeys in Northern and Eastern Siberia, that I need do no more than allude to the progress he is making in the

publication of the results of that expedition. During the past year he has published portions of the first and third volumes. The first contains, besides the introduction, the climatology and geology of the country. The third volume is devoted to a description of the language of the Jakutes; two parts of this volume have appeared, one on the language of the Jakutes, the other a Jakutsk and German dictionary, the Jakutsk being written in Russian characters.

Within the last few days we have learnt from Colonel Helmersen that Colonel Hofmann had returned from his expedition to the Northern Ural towards the end of last year. He ascertained that the mountain chain does not reach the coast, but terminates abruptly at a distance of 50 wersts from the sea, the intervening space being low and marshy. From this point Colonel Hoffman returned to the river Kara, keeping along the chain of mountains called Pai-Khoi, already noticed and described by Count Keyserling. On his way back Colonel Hofman proceeded to the sources of the Kara, thence by the Petschora to Oust Ilitch, Mesen and Archangel.

As soon as the different members of the North Ural expedition meet at St. Petersburg they will prepare the general account of their journeys. Numerous points have been astronomically fixed, and the ground has been accurately laid down. M. Strajewski, who was to have examined, during 1848, that portion of the Ural which lies between 66° and $64^{\circ} 30'$, had the misfortune to lose all his reindeer, and had great difficulty in escaping with his life from the mountainous desert in which he was thus left. Two of his companions perished in the mountains.

Amongst the works of Russian travellers published during the past year must be mentioned the journey of Theod. Basiner through the Khirgese Steppes to Chiwa, published in the 15th volume of the 'Beiträge zur Kenntniss des Russischen Reiches und der angrenzenden Länder Asiens.' In forwarding this work Colonel Helmersen remarks that by the joint work of MM. Abbott, Shakespeare, and Basiner the principality of Khiwa is now so well known, that but little is wanting to complete our geographical knowledge of it. M. Basiner took his departure from Orenburg, of which he gives a full account, in company with Colonel Danilewsky, proceeding to Khiwa on a diplomatic mission to the Khan.

M. Basiner describes the appearance of the steppes between Orenburg and the Ust-Urt as singularly arid and deserted; and he divides it, according to its vegetation, into three districts, separated by the rivers Ileck and Ati-Dschaksy. In the southernmost of these districts he

describes a singular and anomalous plant occurring in great abundance, like a round pebble, quite detached from the soil, the *Parmelia esculenta*, first discovered by Pallas. But if the steppes are arid, the uplands of the Ust-Urt are still worse. The greater part of this region is stated to be a bare rock, extending to within a short distance of the Sea of Aral, lying 600 feet below it. The geological features of the rocks which compose this steep escarpment are described, as well as the fossils contained in them. On reaching the southern extremity of the Landan lake (the shallow termination of the Aral), the travellers descended into the plain watered by the Ssarkrauk, said to be the channel by which the Oxus formerly emptied itself into the Caspian. They crossed the Ssarkrauk at Kunä Urgendsch. The statement of the Tartar historiographer and ruler Abulghasi, that the branch of the Amudarja or Oxus, which flows by Kunä Urgendsch, formerly flowed into the Caspian, is conformable to the present traditions of the Chivans. It would even appear that there is a chance of its resuming its former course, inasmuch as that portion of the river which flows past Kunä Urgendseh is now said to flow a distance of two days' journey before it is lost or dried up in the desert, whereas formerly it only reached a few wersts beyond the city. Mr. Basiner regrets that he was unable to trace it towards the Caspian. From Chiwa he extended his travels as far as Chosarasap; and on his return from Chiwa to Orenburg passed through the delta of the Amudarja or Oxus, of which he has given an interesting account.

Aralo-Caspian depressions.—Colonel Helmersen informs us that considerable progress has been made during the last year in the examination of the Aralo-Caspian depressions. The results of the work of 1848 on the shores of the Lake Aral and in the Valley of the Yaxartes (Syr Darga) are very important. On the shores as well as on an island discovered in the middle of the lake, cretaceous and eocene fossils have been found. The fossil remains found in great numbers in the steppes on the N. and E. of the Aral prove that this lake *at a time hardly removed from the historic period* covered a much larger surface than at present. Colonel Helmersen will fully enter into this question in the Travels of the late Mr. Lehmann from Orenburg to Bokhara and Samarcand, which he is now editing.

Although Dr. Basiner was unable to trace the course of the old bed of the Oxus to the Caspian, hopes had been raised that this interesting problem would have been solved ere now by the zeal and researches of an enterprising French traveller whose name has been more than once honourably mentioned in this room. It was the intention of M. Hommaire de Hell, who has already published an elaborate

work on the steppes of the Caspian Sea, after passing through Asia Minor, Armenia, and Persia, to have explored the arid steppes between the Caspian and the Aral Sea; he had arrived safely at Teheran, and was on the point of commencing his researches when disease suddenly overtook him. Overcome by the excess of physical and intellectual fatigue in the marshy provinces of Mazenderan and Atterabad, he fell a victim to the poisonous influences of the climate.

During the past year Dr. Grewingk, a distinguished naturalist and geologist, has explored the peninsula of Kanin, on the shores of the Frozen Ocean, N.E. of Archangel. He is about to publish an account of his discoveries.

Armenia.—M. Vivien de St. Martin has laid before the French Geographical Society an interesting report on the geographical history of the countries bordering on the Caucasus and Armenia, and on the principal desiderata for the geography and ethnography of the Caucasus. In this report M. de St. Martin has pointed out those portions of Armenia and of the countries between the Euphrates and the Tigris, including the neighbourhood of the lakes of Urumiah and of Van, to which the attention of geographers should be directed, to fill up the numerous gaps still existing in our knowledge of the geography of that portion of Asia, where so few points have been yet astronomically fixed.

India.—At a moment like the present, when such great efforts are being made, both in this country and in India, to open up the commerce of the interior of Hindostan, and to improve the communications of Western India, every attempt to ascertain the practicability of rendering navigable the rivers of India becomes of great importance. With regard to the Nerbudda, we find that this point has not been neglected by the Indian Government. In the Transactions of the Bombay Geographical Society for 1848 is a report of a trip down the Nerbudda from Mundlairsir to Baroche, by Lieut. H. L. Evans, with sketches of the Sansadara, and of a proposed road along the north bank of the Nerbudda to Dauree, by Lieut. Keatinge. At Hirn Phal Lieut. Evans found that the river had risen 18 feet above the usual hot season water-mark, and he met with no inconvenience in descending the rapids. We also find in the Journal of the Asiatic Society of Bengal for August, 1848, a journal of a passage down the same river, from the Dauree falls to Hirn Phal, by Capt. Fenwick, in charge of ten boats laden with coal from the rich mines of Hosungabad. The details of this passage are full and interesting; but the result of Capt. Fenwick's examination was, that the Nerbudda was in many

places useless for navigation, and he found, when the river was low, the rapids at Hirn Phal extremely dangerous. He also examined the Nerbudda by boats from Hindia to the falls of Dauree.

Punjab.—The interesting work of Capt. J. D. Cunningham, entitled 'History of the Sikhs,' will be found well worthy perusal and study, particularly in an ethnographical point of view. Capt. Cunningham filled several situations of trust in Upper India; for eight years he dwelt amidst this warlike and powerful people, and during this period had full and free access to all their public records. We have here an account of the extent, the climate, and the productions of the Sikh dominions, as well as of the many different tribes and races who inhabit or dwell within the limits of the Sikh possessions. These tribes are very numerous; I may mention as one instance, that in 1030 villages between the Jumna and the Sutlej, 41 tribes of agriculturists alone were found on an enumeration being made after our conquests had extended north of the Sutlej. At the same time a great assimilation of the principal races seems to have gradually taken place after successive immigrations; thus we are told, "The people of Cashmere have from time to time mixed with races from the north, the south, and the west, and while their language is Hindoo, and their faith Mahometan, the manners of the primitive Kush or Kutch tribes have been influenced by their proximity to the Tartars." The chief country of the Sikhs themselves is described as about Lahore, Amritsir, and Goojrat.

Thibetan Frontier.—I alluded last year to the expedition into Chinese Tartary undertaken by the Indian Government. The principal object of that expedition was to arrange with certain Chinese Commissioners the boundary-line between Ladak and the Chinese territory. In consequence of the absence of the Chinese Boundary Commissioners the British Officers were left to follow out their further instructions, viz., "that the Commissioners should individually use their best endeavours to increase the bounds of our geographical knowledge." With this view Lieut. Strachey continued his course down the Parang river, while Capt. Cunningham and Dr. Thomson proceeded to Haulé over the Lanak Pass. Capt. Cunningham and Dr. Thomson subsequently proceeded to Lé, the capital of Ladak; from thence Dr. Thomson proceeded to Nubra and the Kara Korum Pass, of which we have already had an account. Capt. Cunningham has recorded the result of his investigations in a series of letters addressed to Colonel Lawrence, which have been published in the *Journal of the Asiatic Society of Bengal* for 1848. In the course of his journey he visited Cashmere,

and had an opportunity of examining and measuring its principal architectural antiquities. These ancient temples of Cashmere are remarkable for great elegance of design combined with solidity of construction. Vocabularies of several dialects of the Dardú language were also obtained. Capt. Cunningham states that he has discovered the exact position of the ancient capital of Cashmere in Pandistan, a corrupt form of the Sanscrit name *Puranadhistana*, or *Puranadhitana*, *the old chief city*. Another important point in comparative geography is the identification of the ancient country of Bolor with the present Balti or Little Thibet. Valuable additions were also made to Sanscrit literature. In another letter Capt. Cunningham states his belief of having satisfactorily discovered the situation of Aornos in the vast hill-fortress of Ranigat or Ranigarh, immediately above the village of Nogram, 16 miles N. by W. of Ohind, and about the same distance from the west bank of the Indus. Ranigat corresponds in all essential particulars with the description of Aornos as given by Arrian, Strabo, and Diodorus.

Lieut. Strachey.—It was stated on a former occasion that Lieut. Strachey had succeeded, in 1846, in reaching the Lake of Manasarowara, situated far within the Thibetan frontier, on the northern flank of the Himalaya range, and the reputed source of the Sutlej and Sampoo. An interesting account of Lieut. Strachey's journey to the two lakes Cho Lagan (or Rakas Tal) and Cho Mapan (or Manasarowara) will be found in the Journal of the Asiatic Society of Bengal for last year. Lieut. Strachey crossed the Himalayan range very nearly due south from the lakes, starting from a spot near the Nepalese frontier. The elevation of the lakes he found to be 15,250 feet above the level of the sea. In another part of the same Journal Lieut. Strachey says, in giving an account of the lake Manasarowara, that one of the main results of his visit to Thibet was the having ascertained that the great plains had been evidently produced by lakes or seas, the great mass of them being perfect gravel to the depth of 800 or 1000 feet, to which extent the rivers cut into them. These papers are accompanied by an explanation of the elevation of places between Almora and the lakes of Gangri, in which the altitude of 71 places is given, and by a note on the construction of the map of the British Himalayan frontier in Kumaon and Garhwál by the same author.

In the number of the Journal of the Asiatic Society for April, 1848, will be found an itinerary from Phasi in Thibet to Lassa, with appended routes from Darjeeling to Phasi by Dr. Campbell, Superintendent of Darjeeling. Phasi is a frontier mart of Eastern Thibet, well

known to the people of Sikim and Bootan. They are stated to have been compiled with great care, and, in a country so little known and visited, deserve attention; though, of course, from the mode of their construction, they cannot deserve the same confidence as if the author had himself visited the country. Some notes and remarks by Mr. Hodgson are added by way of further elucidating the details.

Amongst many interesting papers in the Journal of the Asiatic Society of Bengal I may mention a short survey of the countries between Bengal and China, showing the great commercial and political importance of the Burmese town of Bhanmo on the Upper Irawady, and the practicability of a direct trade overland between Calcutta and China, by Baron Otto des Granges. Also an interesting account of observations made during several short excursions from Almorah to the Turæe and outer Mountains of Kumaon, by Major Madden, principally in a botanical point of view. We have also an identification of the Itinerary of Hwan Thsang through Ariana and India, by Capt. Alexander Cunningham, who describes it as the most valuable document we possess for the history and geography of Ariana and India, prior to the Mahomedan conquest. Another paper contains observations made when following the grand trunk road across the hills of Upper Bengal, Parus Nath, and in the Saone Valley, and on the Kymaon branch of the Vindhya Hills, by Dr. J. D. Hooker. These observations were chiefly made with the view of instituting a comparison between the vegetation of various areas differing in soil, elevation, and general contour, which were traversed by the author; they are chiefly meteorological, made with barometer, thermometer, and with the wet bulb for ascertaining the nocturnal radiation, the radiation from glass, the temperature of the soil, and the power of the sun's rays by means of a blackened bulb, and photometer, &c. &c.

Dr. Hooker has also added to our knowledge of the geographical distribution of plants by his discovery, in the mountains of the Eastern Himalaya, of many new and beautiful species of *Rhododendron*, so numerous indeed as to justify our looking upon this locality as the peculiar region of these interesting plants. They have been lately published and edited by Sir W. Hooker.

Indian Surveys.—The trigonometrical survey of India progresses satisfactorily. During the past year the measurement of the base of verification at Sonakoda, in the neighbourhood of Darjeeling, has been completed under the personal superintendence of Lieut.-Colonel A. S. Waugh, the Surveyor-General of India. In these operations the position and elevation of Darjeeling have been properly fixed, and the

stupendous altitudes of Chamalari and Kauchinginga, the latter rearing its enormous height upwards of 28,000 feet above the level of the sea, and several other peaks almost equally elevated, have been trigonometrically determined. The details have not yet been received. Captain Du Vernet was employed in the triangulation of the Julinder Doab and of the Hill States of Mundi, Belaspoor, &c. Mr. J. W. Armstrong has completed the triangulation of the Gora meridional series. The surveying party under Mr. C. Lane, having completed the Maluncha meridional series, has been placed under the superintendence of Captain Renny, who will proceed from the Seronj base in a longitudinal direction westward to Kurrachee. The Calcutta meridional series under Mr. J. Peyton has been extended to its northern limit, and connected with the Sanakoda base of verification. Captain C. T. Hill started from the Calcutta base, and has carried on a triangulation as far as Tumlook; he will continue on until he connects it with the Madras survey near Ganjam. The topographical survey of the Bengal districts proceeds steadily. On the Bombay side of India the triangulation under the superintendence of Lieut. Rivers has been extended to the borders of the valley of the Bunnass, in lat. $25^{\circ} 10'$; it is proposed that he should proceed in an easterly direction towards Seronj, and effect a junction of the series with the longitudinal series conducted by Captain Renny, with whom he will then co-operate in accelerating his operations towards Kurrachee. In the Madras presidency the topographical survey is being continued in the Ganjam district by Captain Halpin, and in the Hyderabad territory by Major Morland. Sheet 89 of the Indian Atlas has been recently published, and also a new edition of sheets 69 and 70.

Marine Surveys.—Moulmein river and the Gulf of Martaban have been surveyed by Lieut. Fell, I.N.; this officer has also completed the survey of the Coromandel coast as far north as the Santapilly rocks: he is now engaged in surveying the coast of Pegue, between Cape Negrais and Martaban. Lieut. Montriou, I.N., has surveyed most of the harbours and anchorages on the coast of the Southern Konkan and Malabar. The survey of the S.E. coast of Arabia is far advanced under the superintendence of Captains Haines and Sanders, I.N.

China.—In a small volume entitled ‘Transactions of the China Branch of the Royal Asiatic Society’ will be found an interesting article by the Rev. C. Gutzlaff on the Mines of the Chinese Empire, containing much information respecting the mineral wealth of China, especially in silver and gold; and describing the different localities in which they are found. Gold seems to occur in several places, and

to form a considerable source of revenue to the Chinese government. Besides the above, iron, tin, and quicksilver have also been found in considerable abundance.

A work in two volumes, entitled 'China and the Chinese,' has been published by Mr. Henry Charles Sirr, some portions of which had been already published in the Dublin University Magazine. Although the work principally professes to describe their religion, character, customs, and manufactures, some geographical information will be found in the chapters which describe the extent and population of the different provinces, their number and geographical position. The author recommends Chusan as a British colony, in preference to Hong-kong.

Mr. Aaron Palmer, Corresponding Member of the National Institute at Washington, has addressed to Mr. Polk a Memoir, geographical, political, and commercial, on the present state, productive resources, and capabilities for commerce of Siberia, Manchuria, and the Asiatic islands of the North Pacific Ocean, and on the importance of opening commercial intercourse with those countries. This memoir is extracted from his forthcoming work entitled 'The unknown Countries of the East,' and has been printed by order of Congress. It contains some valuable information respecting the harbours and islands of the North Pacific, and the coast of Northern China, Siberia, and Kamtschatka; also a description of the vast province of Manchuria, between China and Siberia, with an account of its principal rivers, particularly the Amúr and its tributaries. This river is said to have a course of 2280 miles before it discharges its waters into the Gulf of Saghalien. The author considers that there are no insurmountable obstacles to a direct communication being opened between the Pacific and the Baltic, and with the Caspian and Black Seas, by the route of this river and the navigable waters of Siberia. Truly a magnificent prospect to the future navigators of the Pacific; yet the author shows that a succession of navigable rivers exists by which, with the aid of two or three short *portages*, the whole communication may be effected. We have also an account of the island of Saghalien or Tarakay, 600 miles in length, and varying in breadth from 25 to 120 miles, celebrated for its fisheries and the facilities it affords for whaling expeditions, together with an account of the Russian and Japanese Kurile Islands, with many interesting geographical details and notices of the products of the various districts.

Palestine.—Some interesting remarks respecting the geography of Palestine will be found in a small work entitled 'Scripture illustrated

from recent discoveries in the Geography of Palestine,' by the author of the 'People's Dictionary of the Bible.' It is accompanied by a small map of Palestine, constructed and engraved by W. and A. K. Johnston, with corrections and additions of sections by Aug. Petermann, F.R.G.S. The recent discoveries of Russegger, Molyneux, Symonds, and the late American Expedition, are introduced and ably commented on in the text. It may, however, perhaps be suggested that the author, in discussing the course of the Jordan, the depression of the Dead Sea, and the direction of the valley of Wady el Arabah to the Red Sea, has somewhat hastily asserted the impossibility of the Jordan having once flowed down the Wady el Arabah into the Red Sea. The grounds of this assertion are, first, the depression of the Dead Sea and the Jordan below the Red Sea; and secondly, the elevation of the upper part of the Wady el Arabah 400 feet above the Red Sea.

The author appeals with great confidence to the works of Russegger, but he has omitted to observe that Russegger himself, alluding to the remarkable depression of the Dead Sea and the Valley of the Jordan, says, that this long line of depression may have been caused by violent volcanic action exerted on the limestone rocks, of which the greater part of Syria consists, occasioning a great fissure along the surface, by which the earth opened, and the ground sunk in from Djebel es Scheik to the watershed of Wady el Arabah. Into this fearful chasm the waters of the Jordan would flow, unable to cross the watershed of Wady el Arabah, even supposing that part of the country had not been raised simultaneously with the depression of the other, to which there is no physical objection; and it must be remembered that the sources of the Jordan are placed by our author on the plateau of Hasbeya, 1800 feet above the sea. He is not therefore warranted in stating that this question of the Jordan having once flowed down the Wady el Arabah is put an end to, or that the notion is exploded for ever on the authority of Russegger.

Colonel Lapie has laid down four of the sheets of his map of Turkey in Asia in six large sheets, on which he has been engaged for the last 40 years, and which still mainly occupies his attention. The remaining sheets, including Ispahan and Teheran, are progressing. Colonel Lapie has also recently published a new edition of his small map of Turkey in Asia, Persia, Affghanistan, Beloochistan, and Great Bokhara, in six sheets, and on a scale of $\frac{1}{3500000}$.

Dead Sea.—In the course of last year Captain Lynch, of the United States Navy, obtained permission from the Turkish government to explore in boats the Lake of Tiberias, the Jordan, and the Dead Sea. This

officer does not seem to have been aware that the result of the late Lieut. Molyneux's expedition, however fatal to himself, fully proved the feasibility of the undertaking, and that he had himself lived to furnish a full account of his expedition. In the absence of the official account, not yet published, some notices of that published in the 'Courier de Constantinople' may not be unacceptable. The report confirms the statement of Lieut. Molyneux as to the difficulties of the navigation of the Jordan, in consequence of its fearfully rapid currents ; so great is the fall, that the difference of elevation between the two lakes is estimated by the American at 2000 feet. This is probably exaggerated. The expedition made the tour of the Dead Sea. The greatest depth found was 188 fathoms, which also agrees with Lieut. Molyneux's statement. The bottom of the lake is described as being flat and even, very deep in the northern part, and shallow in the southern. We must wait for the publication of the official report before we give credit to all the statements contained in the preliminary notice alluded to.

Mount Sinai.—Mr. John Hogg, a member of our Society, has just published an interesting memoir, already read before the Royal Society of literature, entitled 'Remarks and Additional Views on Dr. Lepsius's proofs that Mount Serbal is the true Mount Sinai ; on the Wilderness of Sin ; on the Manna of the Israelites ; and on the Sinaic Inscriptions.' It is accompanied by a beautifully executed map of the Peninsula of Mount Sinai, drawn and engraved by Mr. William Hughes. The author shows, from numerous proofs collected from the testimony of ancient and modern writers, that the position of Mount Serbal, about 25 miles W.N.W. of Gebel Mousa and Gebel Katherin, has more claims to be considered the real Mount Horeb or Mount Sinai of Scripture than either of the other localities. This is also confirmed by the character of the mount itself, with its regular steps and numerous inscriptions, proving it to have been at some early age a place of holy pilgrimage. The subject is elaborately and fully discussed, the numerous authorities bearing on it quoted or referred to, and the whole literature of the question is carefully brought together and considered.

Indian Archipelago.—I regret to state that the survey of the S.W. Coast of Borneo and of the Natunas, which was making such satisfactory progress under Lieut. Gordon, has been suddenly suspended in consequence of the death of this officer. It seems uncertain whether it will be continued for the present.

Borneo, Celebes, &c..—In the 'Moniteur des Indes Orientales' will be found several excellent maps of the islands of Borneo, Celebes,

Sumatra, and other places, constructed by Baron P. Melvill de Carnbee.

AUSTRALIA.

I have also to announce the publication by Mr. Arrowsmith, during the past year, of a map of Eastern Australia, in six sheets, besides a new edition of his former map, in which the routes of Kennedy and Leichhardt have been laid down.

Dr. Leichhardt.—It was stated last year that this enterprising traveller, nothing daunted by the unsuccessful result of his attempted journey across the Australian Continent in 1847, was again about to attempt his adventurous enterprise. Dr. Leichhardt did in fact start on his great undertaking about the beginning of 1848, and we have received information of his progress as far as the Cogoon from Capt. Phillip King. He proceeded along the Condamine river to the Fitzroy Downs, which he describes as a splendid region, but fears that want of water will render it to a great degree unavailable. He crossed the Downs for 22 miles from E. to W., and came on Mount Abundance, passing over a gap in it with his whole train. He described his cattle as in excellent order, and his companions in high spirits. The date of his letter was April 3, 1848.

There is a report of a later date taken from the 'Maitland Mercury,' stating that Dr. Leichhardt had subsequently discovered a rich tract of country with grass and water, which he considered of such importance, that viewing the uncertainty of his farther proceedings, he had himself returned 300 miles to give information of his discovery to the colonial authorities, leaving his party all well, and that he had subsequently returned to them.

Mr. Kennedy.—I stated in a note to my Address last year, that immediately after the Anniversary information had been received in this country respecting the result of Mr. Kennedy's expedition to trace the course of the Victoria river, supposed by Sir T. Mitchell to empty itself into the Gulf of Carpentaria. Mr. Kennedy's discoveries confirmed the apprehensions of those who had warned the public against a too implicit confidence in Sir T. Mitchell's anticipations. On arriving at the extreme point reached by the Surveyor-General, whence the Victoria was supposed to continue its course in a N.W. direction, Mr. Kennedy proceeded according to his instructions to follow the course of the river whithersoever it might lead him. The river soon separated into several channels; Mr. Kennedy kept along the right bank, apparently that he might not be diverted from the direction in which he was most anxious to trace the river. Its course, however, within a very short distance turned to the westward, and then to the S.S.W.

between the parallels of $24^{\circ} 17'$ and $24^{\circ} 53'$. Gradually the water disappeared, the different branches in succession drying up, until the expedition had great difficulty in finding enough for their daily consumption. The course of the river, now almost dry, subsequently became nearly due S. Mr. Kennedy was aware that the principal object in tracing the course of the river was to reach the Gulf of Carpentaria, but his instructions confined him to the river. He pushed on, lightening his baggage loads at various points, sometimes in want of water, at others finding large expanses which only proved the more delusive, getting farther and farther from the Gulf of Carpentaria, until the total want of water and food for his horses compelled him to return. Mr. Kennedy observes in his report, "I think there can exist but little doubt that the Victoria is identical with Cooper's Creek of Capt. Strutt. That creek was abandoned by its discoverer in lat. $27^{\circ} 56'$, long. 142° , coming from N.E., and, as the natives informed him, in many small channels forming a large one; the lowest camp of mine on the Victoria was in lat. $26^{\circ} 13' 9''$, long. $142^{\circ} 20'$, the river in several channels trending due S., and the lowest part of the range which bounds that flat country to the eastward bearing S. 25° E." Mr. Kennedy retraced his steps, recovered the provisions left behind, and on reaching the Warrego, determined to follow that river down to the S.W., with the view not only of finding an available country, but of adding to our knowledge of the range which divides the waters of the Darling from those of the interior. He followed the river for nearly a month, passing through luxuriant pastures and a well watered country. On reaching lat. 28° , however, the appearance of the country was completely changed, and at lat. $28^{\circ} 25'$ he was again without water, and reduced to the necessity of cutting his way by forced marches across the country to reach the Culgoa. On the Warrego the Victoria language is spoken, with only a slight difference in the pronunciation.

Shortly after his return to Sydney, Mr. Kennedy started on another expedition, for the purpose of exploring the interior of Cape York Peninsula and the country between the Belyando and the Gulf of Carpentaria. By accounts from Capt. Owen Stanley, who conveyed Mr. Kennedy and his party to Rockingham Bay, we learn that he landed there on the 24th of May last year, and having encamped for a few days to recruit his sheep and horses, started for the interior on the 4th of June in high spirits. They had to encounter a little swampy ground at first, but after that the country seemed clear. Mr. Kennedy's plan was to proceed to Cape York along the eastern side of the promontory. After recruiting his party there, where he was to receive a fresh supply of sheep and provisions, he would proceed to the south-

ward along the eastern shores of the Gulf of Carpentaria, to the mouth of Water Plaets river, as marked in Flinders' chart. He will ascend this river to ascertain whether it be identical or not with the river Mitchell discovered by Leichhardt. He will then cross the Nonda country till he reaches the Flinders river, which he will trace to its source, and thence return to the settled districts in the neighbourhood of Moreton Bay.

Surveys.—Captain Owen Stanley is making satisfactory and rapid progress in the survey of the coasts of Australia. He has already furnished the Admiralty with surveys of Moreton Bay, Port Curtis, and Sandy Island, and has re-examined the locality of Albany Island, near Cape York. He will this year continue the survey of the eastern coast between Cape York and Rockingham Bay, and of the dangers between it and the Barrier Reef.*

Captain Stokes, to whom the survey of New Zealand has been intrusted, has already reached the scene of his intended operations, and will now prosecute the survey of its shores and harbours, according to the seasons and the immediate requirements of the colony.

AFRICA.

The question of the sources of the White Nile still remains unsolved, notwithstanding the animated discussion which has been carried on between Dr. Beke and M. d'Abbadie. As I have stated on a former occasion, the principal point in discussion is, whither do the rivers discovered by M. d'Abbadie, and by him called Gebbe and Godjeb, flow? Are they the head waters of the Jubba, which falls into the Indian Ocean, as asserted by some African geographers? or do they fall into the Baro or Sobat, as maintained by Dr. Beke? or do they flow westward into the Shoa Berri of M. d'Arnaud, as M. d'Abbadie supposes? The only additional evidence published on this question since our last anniversary is that of Mr. Werne. A short paper on this subject was read at the meeting of the British Association at Swansea by Mr. Werne, together with some observations by Dr. Beke. Since then Mr. Werne's book has made its appearance, and has now been translated into English by Mr. C. W. O'Reilly. Mr. Werne was one of the companions of M. d'Arnaud in the expedition sent by Mehemet Ali in 1841, when they reached the Bari country, a little to the S. of the fourth parallel of N. lat., beyond which the shallow and rocky bed of the river prevented the further advance of the boats. Mr. Werne's work contains some

* Since the above was read, we learn that Capt. Stanley has returned to Sydney, having completed the survey between Rockingham Bay and Cape York. He was disappointed at not falling in with Mr. Kennedy at the latter place.

interesting details of the native customs and habits, and of the scenery and botany of the country. There is not, however, one word respecting the observations for positions, nor are there many scientific remarks throughout the book. The only evidence bearing on the Nile question is, that the natives of Bari stated that the river came from very far off to the S. I have not seen the original, but, judging from the translation, the tone and spirit in which the work is written are most objectionable, and the contemptuous and offensive remarks on his French fellow-travellers, even if they were justifiable in fact, are much to be regretted. With regard to the main question at issue, any further hypothetical discussion is in vain. Nothing can be known until the Godjeb is further examined and traced to its termination.

Snowy Mountains.—In the first Number of the 'Church Missionary Intelligencer' (May, 1849) is a narrative of a journey to Jagga, the snow country of Eastern Africa, by Mr. Rebmann, a member of the East African Mission, giving some information respecting the interior of the country, to which he penetrated for a considerable distance from Mombás, meeting with little or no opposition from the natives. The most remarkable feature in this expedition was the discovery, after 10 or 12 days' journey from the coast, of the mountains of Jagga, one of which, called Kilimandjāro, is reported to be covered with perpetual snow. This was most unexpected; and some idea of the elevation of this remarkable mountain may be formed from the fact that it is situated between 3° and 4° S. of the equator. It was seen by the party to the westward, and is laid down by them approximately in nearly the same latitude as Mombás. The river Gona, flowing near its base, is supposed, from the extreme coldness of its waters, to be derived from the melting of the snows of Kilimandjāro, the height of which has been roughly estimated at 20,000 feet. Much rain fell during their stay at Jagga, in the month of May.

The discovery of this lofty mountain has been assumed as giving additional strength to the arguments of those who look for the sources of the White Nile to the S. of the equator; but its comparative proximity to the coast, and the course of the rivers both to the N. and S., which would carry off a great portion of the waters resulting from its melted snows, ought to make us cautious in adopting such a conclusion without more detailed information. The instructions given to Dr. Bialloblotzky, previous to his departure from England last June, contemplated his attempting to penetrate into the interior of Africa from Mombás or its vicinity. We may therefore expect, in the event of his succeeding in his attempt, additional information on this subject from his exertions. The last accounts received of him were from Muscat,

whither he had proceeded from Aden, in the hope of finding a vessel to take him to Mombás.*

A map of the countries watered by the Nile has been published by Dr. Kiepert, during the past year, at Weimar : it includes Egypt, Nubia, and Habesch ; and from Dr. Kiepert's well known abilities in such constructions it may fairly be looked upon as containing the latest and most accurate information respecting these countries.

Libyan Desert.—Mr. Bayle St. John has added to our knowledge of the geography and antiquities of North Africa by his graphic descriptions and interesting account of his adventures in the Libyan Desert and the Oâsis of Jupiter Ammon, which he lately visited. We have had so little information respecting these curious and isolated localities, where the prolific exuberance of nature shows itself by its efforts in the midst of the desert, that Mr. St. John's volume, despite a few slight blemishes, is one of the most instructive of the series of Mr. Murray's 'Home and Colonial Library.'

Algeria.—Colonel Lapie is engaged in correcting the map of Algeria. A map of the whole district of the Tell, reduced to $\frac{1}{200000}$, is also in preparation, based on a triangulation made by French officers.

A map of the empire of Morocco has also just been engraved at Paris, under the inspection of Colonel Baudouin, on a scale of $\frac{1}{150000}$, and a map of Tunis is projected on the scale of $\frac{1}{200000}$.

We learn from the public papers that Colonel Ducouret, already known to the French public for his travels in Egypt, Syria, Abessinia, Darfour, Arabia, Persia, &c., now proposes to traverse the whole of the African continent from Algiers to Senegal, passing through Timbuctoo ; from Senegal to proceed to the Cape of Good Hope, and thence through the whole African peninsula from S. to N., viz., from the Cape of Good Hope to Algiers. Having resided for sixteen years amongst the Arabs, by whom he is known as Hadji Abd-el-Hamed Bey, and having performed a pilgrimage to Mecca, he possesses many facilities and advantages for this hazardous undertaking not usually found in Oriental travellers.

Algoa Bay.—Some interesting remarks respecting this well-known but hitherto unsurveyed harbour of Algoa Bay will be found in the 'Nautical Magazine' for October, 1848. Its capabilities as a harbour seem hitherto to have been overlooked and its safety underrated.

* Since reading the above, intelligence has reached England that Dr. Biallotzky had arrived at Zanzibar in February last. The reception which he states that he met with from the British Consul, who not only raised objections to his journey into the interior, but refused to aid him in its prosecution, was most discouraging. When, however, he met with the same treatment from the missionaries, on what grounds have not yet been explained, he found himself under the necessity of giving up his expedition and of returning to Aden, from whence he has written to Dr. Beke (June 4).

M. A. Raffeneil, a young Frenchman, who, on the occasion of our last Anniversary, was reported to be still prosecuting his adventurous journey in the interior of Central Africa, has returned to Paris within the last four months, unable to continue his undertaking in consequence of insuperable difficulties, which, however, have not yet been fully explained.

I noticed in my Address last year some of the principal results of Mr. Duncan's visit to Western Africa, and of his journey through the kingdom of Dahomey to Adafoodia. We may congratulate the cause of African geography and African civilization on the fact that Mr. Duncan is about to return to the scene of his former exploits, under the sanction and protection of the Government. From Mr. Duncan's intimate knowledge of the manners and habits of the people, from his personal acquaintance with many of the principal native chieftains, and from his well-tryed prudence under similar circumstances, we cannot but anticipate a great increase to our knowledge of the physical geography and products of the interior of this part of Africa. Mr. Duncan will endeavour, should a favourable opportunity present itself, to reach Timbuctoo. He goes with the best wishes of the Society, and their hopes for his successful return from his difficult and arduous undertaking.

Two German travellers in Africa have lately returned to Europe, from whom we may expect some interesting information. Dr. Peters has returned to Berlin from his exploring mission to Eastern Africa, after an absence of more than five years; and Baron von Müller has lately returned to Germany, after many years' residence in Egypt and other parts of Africa. He proposes again visiting Egypt, and establishing a colony far up the banks of the Nile, after which he intends crossing the whole African continent from east to west.

NORTH AMERICA.

Arctic Expedition.—In proceeding to describe the progress of geography on the western side of the Atlantic, it is with feelings of regret, now not unmingled with apprehension, that I have to state that no information has been received during the past year respecting Sir J. Franklin and his expedition. A report was in circulation some months ago that the firing of guns in the Polar Sea had been heard along the coast by natives, but it was never traced to anything positive or satisfactory. In the mean time it is some consolation to know that the Government have not been idle in their endeavours to obtain information of, or to render timely assistance to, the long absent expedition. A reward of 20,000*l.* has been offered by Her Majesty's

Government to any parties, whether by sea or by land, who shall have rendered efficient assistance to Sir J. Franklin, his ships, or their crews, or may have contributed directly to extricate them from the ice.

The Government have further consulted all those naval officers and others whose experience in the Polar Seas enabled them to give advice on the subject, as to the best means to be adopted for affording relief to the missing expedition. In consequence of their unanimous opinion, another vessel is ordered to proceed at once with additional supplies for Sir James Ross, and to desire that both the *Enterprise* and the *Investigator* should remain in the Arctic Seas for the purpose of carrying on the search for the *Erebus* and *Terror*. The *North Star* is preparing for this purpose under Mr. Saunders, who has already visited those seas under Sir G. Back. She is provided with instructions to be deposited in various places, some of which were already designated by Sir James Ross as places of rendezvous.

The Admiralty have expressed their willingness to place a ship at the disposal of the Liverpool Shipowners Association, for the purpose of being fitted for searching the Arctic Seas. The cost of preparing and fitting out the vessel would probably have to be defrayed by public subscription. It has been stated that the Russian Minister, Baron Brunnow, deeply interested in the fate of the Arctic Expedition, has urged his Government to send out exploring parties from the Asiatic side of Behring's Straits, and that this proposal will be carried into execution during the present summer.

In addition to these measures, it has been reported that the Government of the United States intend fitting out two vessels for the purpose of assisting in the search for Sir J. Franklin; one to proceed into the Arctic Seas by Behring's Straits, and the other by Baffin's Bay.

Instructions have also been forwarded to Captain Kellett, of the *Herald*, ordering him to proceed northward, with all the provisions he can stow, to join the *Plover*, and in the event of falling in with her to proceed in company direct to Behring's Straits. Captain Kellett is directed to supply the *Plover* with provisions, so that she may be enabled to pass the winter of 1849-50 in the Behring's Straits, and make such search for the missing vessels as was intended should have been made during the summer of 1849. As the time approaches when the provisions of the *Erebus* and *Terror* must be nearly exhausted, our interest in their fate becomes painfully excited, and we fervently trust that these combined operations for their relief may not have been undertaken in vain, and that before the expiration of the present year the gratifying intelligence of the safety of their gallant crews may reach the ears of their anxious countrymen.

The last information received from Sir J. Richardson and his overland party was from the Methy Portage, July 4, 1848; and the last accounts of Sir James Ross were dated August 28, 1848, at the mouth of Lancaster Sound.

The survey of the shores of Prince Edward's Island having been recently completed under Captain Bayfield's examination, he is now employed on those of Cape Breton Island.

Commander Shortland, who was assistant under Rear-Admiral W. F. Owen, in his recent survey of the Bay of Fundy, is about to resume the survey as its chief, and will continue his operations from the spot where the Admiral left off.

Canada.—Mr. J. Arrowsmith has just completed a new and magnificent map of Canada in 8 sheets, which I understand will be published before the end of the month. Its execution reflects the greatest credit on Mr. Arrowsmith, whose talents in this respect are too well known to need any further recommendation at my hands.

United States Coast Survey.—The report of the Superintendent of the United States Coast Survey shows the progress made in that Survey during the past year. From it we learn that the work has now been carried into every State but one on the Atlantic and Gulf of Mexico, and that preparations are making for extending it into the Pacific. Six sheet charts have been published during the year, and ten others are in the hands of the engravers. The entire number of Coast Survey maps already published is twenty-one. Six new shoals have been discovered during the season off Nantucket, and one in Chesapeake Bay. A large area, extending more than twenty miles south and east of Nantucket, is thickly beset with dangers, and as they lie in the track of vessels trading to Europe from New York, it is of the utmost importance that their positions should be accurately laid down.

Great pains have been taken to determine with the utmost precision the longitude of some one point in the United States as compared with that of Greenwich. For this purpose the Superintendent of the United States Observatory has availed himself of the opportunities afforded by the outward line of steamers between Liverpool and Boston. On the arrival of a steamer at Boston, the chronometers are taken to the Cambridge Observatory for comparison, and again on their arrival at Liverpool they are taken to the observatory at that place. In this manner 116 chronometers have been observed in 34 voyages.

I alluded in my Address last year to the intended employment of the electric telegraph for the purpose of determining the difference of longitude between different places. This plan is now extensively adopted. The difference between Washington and New York and Philadelphia was

determined in 1847. During the past year the difference between New York and Cambridge Observatory has been determined by the same method. The report describes the manner in which these experiments were carried out. Three different systems of observations have been employed: 1°. the absolute difference of time between the two places by transmission of signals; 2°. the comparison between solar and sidereal times at the two stations by the alternate transmission of signals in coincidence with the beats of the chronometers relatively marking solar and sidereal time; and 3°. by telegraphing the exact times of the transits of stars over each wire of the telescope of a transit instrument. The most absolute accuracy may be expected from the combination of these methods.

Among the operations of the survey more immediately connected with the commerce of New York is mentioned the survey of Hell Gate; 4000 soundings and 614 angles with the sextant have been taken. The exploration of the Gulf-stream was also continued during the past season, and the temperature carefully observed at different depths. A new base-line has been measured on the coast of North Carolina, in connexion with the survey of Albemarle Sound.

The exertions of Lieut. Maury have been already before the public; he has completed the publication of his Wind and Current Charts of the Atlantic, in 8 sheets, and his proceedings have excited great interests in the United States. The important results of his discoveries, both as to scientific information and commercial advantages, are ably expressed in a report of a Committee of Congress, dated Feb. 22, 1849, in which his merits are deservedly acknowledged; and it is recommended that Government should assist his investigations by directing all Government vessels to make the same observations as have been already voluntarily made by merchant vessels.

Vancouver's Island.—Mr. Arrowsmith has lately published a new map of Vancouver's Island, in which the different natural features of the country, so far as they have been surveyed, as well as the locality of the coal-mines, are laid down. The importance of this discovery of good coal in the vicinity of a district which will undoubtedly attract for many years to come the surplus population of all the American states, and perhaps of Europe also, cannot be over-estimated. But a question may rise how far the prosperity of the island, or its condition as a colony, will be advanced by the cession, premature, to say the least of it, of this island to the Hudson's Bay Company. This question, as well as others relating to the political geography of our North American possessions, will be found fully

discussed in a work lately written by Mr. J. E. Fitzgerald, entitled 'Hudson's Bay Company and Vancouver's Island.'

California.—At the last Anniversary I anticipated that the war between the United States and Mexico would increase our knowledge of many portions of the American continent, particularly of the northern provinces of Mexico and California. We have lately received two interesting memoirs published by Congress, detailing the routes of different exploring expeditions in California and New Mexico by officers of the American army. These officers are Colonel Fremont and Major Emory.

The work of Colonel Fremont is entitled 'Geographical Memoir upon Upper California, in illustration of his Map of Oregon and California,' addressed to the Senate of the United States. In explaining the map by which it is accompanied, Colonel Fremont states that it embraces the whole western side of the continent between the eastern base of the Rocky Mountains and the Pacific Ocean, and between the Straits of Fuca and the Gulf of California, taking for its outline on the N. the boundary line with Great Britain, and on the S., including the Bay of San Diego, the head of the Gulf of California, the rivers Colorado and Gila, and all the country through which the line of the late treaty with Mexico would run from *El paso del Norte* to the sea. To complete the view in that quarter, the valley of the Rio del Norte is added, from the head of that river to *El paso del Norte*, thereby including New Mexico. It is believed to be the most correct that has yet appeared either of Oregon or of Alta California, and is certainly the only one that shows the structure and configuration of the interior of Upper California. One of the principal corrections is thus stated: "In the map published in 1845 the western coast was laid down according to Vancouver. When the newly established positions (based on astronomical observations) were placed on the new map, it was found that they carried the line of the coast about 14 miles further W., and the valleys of the Sacramento and San Joaquin about 20 miles E., making an increase of more than 30 miles in the breadth of the country below the Sierra Nevada, viz. between that range of mountains and the Pacific. These positions were found to agree nearly with the observations of Capt. Beechey at Monterey."

The memoir then proceeds to show the character of the country, and to point out the great diversity which exists in different parts; for the present the author limits his observations to the two great divisions of the country which lie on the opposite sides of the Sierra Nevada. This mountain-chain is the grand feature of California: extending at a general distance of 150 miles from the coast, it divides

California into two parts, and the author explains the physical circumstances by which the two sides of the Sierra exhibit two distinct climates. E. of the Sierra Nevada is that anomalous feature of the continent called the great basin, about 500 miles in diameter each way, between 4000 and 5000 feet above the level of the sea, completely shut in by mountains, with its own system of lakes and rivers, and having no connexion whatever with the sea. The great Salt Lake and the Utah Lake constitute the most interesting features of this district, the one a saturated solution of common salt, the other fresh, viz., the Utah 100 feet above the level of the Salt Lake, which is itself 4200 feet above the level of the sea. So complete is the saturation, that 5 gallons of water roughly evaporated gave 14 pints of salt, the analysis of which gave $\frac{97.80}{100}$ of chloride of sodium. The fresh-water lakes and rivers, which are numerous, abound in trout. The maritime regions W. of the Sierra Nevada are described as fertile and genial in the highest degree.

The whole of this district, including the valleys of the Sacramento and San Joaquin, is described by Colonel Fremont in most glowing terms. Abundantly supplied with pasture and timber, it produces in perfection all the fruits and Cerealia of Italy; its climate, instead of varying from hot to cold, ranges between dry and wet, and vegetation, checked by the dryness of summer, is revived by the wet of the winter months. To these advantages is added the harbour of San Francisco, the finest and most perfect in the world, extending from its narrow entrance nearly 50 miles into the interior. The details given in the memoir, to which I must refer you, will be found full of interest and information.

Having completed the superintendence of the publication of his map, Colonel Fremont was about to proceed as a settler to California. Anxious to avail himself of this opportunity of crossing the Rocky Mountains to render additional services to geography, he had arranged a strong exploring party, and proposed in the middle of winter to cross the Rocky Mountains above the head waters of the Rio del Norte. The disastrous and fatal termination of this expedition is now well known. An early winter of unparalleled severity prevented his getting on; he was completely snowed up on the summit of the range. His mules were frozen to death, and it was with the greatest difficulty that he and about half his party escaped with their lives, but in a miserable condition, to Taos.

The work of Major Emory is entitled 'Notes of a Military Reconnoissance from Fort Leavenworth, in Missouri, to San Diego, in California, including parts of the Arkansas, Del Norte, and Gila Rivers.

Major Emory accompanied the force commanded by Colonel Kearny, which was styled "the Army of the West," and, marching from Leavenworth, was destined to strike a blow at the northern provinces of Mexico, particularly New Mexico and California. The party were well provided with instruments, including sextants, chronometers, and barometers, by which, with the exception of some variation in the rate of the chronometers in crossing the mountainous country between Santa Fé on the Rio Grande del Norte and the Gila River, many careful observations were made. The astronomical observations were finally computed and corrected by Professor Hubbard; they establish the geographical position of 52 points extending from Fort Leavenworth to the Pacific.

The line of country thus traversed, and of which we have much interesting information respecting its physical geography, geology, botany, and antiquities, as well as of its inhabitants, may be briefly described as follows:—From Fort Leavenworth they proceeded to Bent's Fort on the Arkansas, and thence in a S.S.W. direction to Santa Fé. From Santa Fé they descended the course of the Rio Grande del Norte in an almost southerly direction for 180 miles; then, turning to the W., they crossed the elevated watershed between the rivers flowing into the Atlantic and the Pacific, and, descending into the valley of the Gila, followed the course of that river down its narrow and rocky bed for several hundred miles to its junction with the Rio Colorado. From thence, after crossing the Colorado near the head of the Gulf of California, they crossed a sandy desert of some extent, and finally reached San Diego after meeting with considerable opposition from the last remnant of the Mexican forces. The greater part of this route is new and interesting; the physical features and vegetation of the country are graphically described; and the work, with its various appendices, accompanied by an excellent map of the route, must be considered as a valuable addition to our knowledge of this portion of the American continent.

The American Congress has also published during the past year a very interesting memoir of a tour to Northern Mexico, connected with Colonel Doniphane's expedition in 1846 and 1847, by Dr. Wislizenus, full of geographical, geological, and particularly botanical information, with a map of a route from Independence on the Missouri to Santa Fé, Chihuahua, Monterey, and Matamoros.

In addition to the increase of our geographical knowledge of California and the northern provinces of Mexico by these expeditions, another event of a remarkable character will undoubtedly ere long

considerably extend our knowledge of these distant countries. It can be scarcely necessary for me to say that I allude to the recent discovery of gold-mines in California—mines of such extraordinary wealth as, taking only a moderate view of the accounts which have yet reached us, to throw completely into the shade all that we have yet heard of the wealth of the Brazils, or the still richer products of the gold-mines of Siberia, on the flanks of the Ural and the Altai, already so fully described to you by Sir R. Murchison in his Address in 1844, and by M. Hoffman in an account of his journeys to the gold regions of Siberia, noticed by me last year. Should the researches of future years in any degree correspond with the results of last year, when it is computed that, notwithstanding the irregularity of the proceedings and the insufficiency of means, gold to the value of four millions of dollars at the lowest computation was extracted from these mines, it is impossible to calculate on the amount of immigration likely to take place into this region in the course of the next few years. By these means the civilization of a new world will be accomplished. Extensive regions, now scarcely trodden by man's foot, known, however, to be productive to the greatest degree, and to contain treasures of scientific interest more valuable to the botanist, the geologist, and the naturalist than its untold stores of gold, will be thoroughly explored. Commerce, spreading from the western shores of the United States, will open a new route across the Pacific to the islands of the Chinese seas, and we may thus look forward to knowing more of the interior of that great empire and of the neighbouring islands than we appear to have any chance of obtaining by other means.

Panama.—But this discovery of the wealth and importance of California has given additional interest to another subject which has at various periods attracted the attention of European statesmen and engineers. The narrow isthmus of Panama is the great obstacle to the easy transition of European and American trade from the Atlantic into the waters of the Pacific. Many plans and suggestions have been offered for overcoming these difficulties, and various localities have been pointed out as affording the least amount of hinderances to such an undertaking. A clear and interesting synopsis of the different points indicated some time back by the illustrious Alexander von Humboldt, from which an artificial communication might be opened between the two oceans, will be found in Mr. Aaron Palmer's Memoir, addressed to the late President, Mr. Polk, already alluded to (No. 80, 1848, 30th Congress). Here the comparative advantages and disadvantages of the different routes are discussed, and the additional information respecting them, subsequently obtained, is brought to bear on their relative merits.

Since then, railroads and canals have been alternately proposed, and supported as best suited the interest of the promoters or the physical characters of the country through which it was proposed to carry them. This is not the place, nor should I have the time, to detail these different plans, but it is evident that this Californian discovery must greatly expedite their construction, as it will also find the means for defraying their expenses. I will only mention that the Mexican Government are now making a carriage-road from Minatetlan, on the river Coatzacoalcos, to the town of Tehuantepec on the Pacific, a distance of 120 miles.

Captain Granville Loch, whilst lately in command of the expedition on the Mosquito coast, has constructed an admirable plan of the course of the S. Juan di Nicaragua, from its mouth to the Lake of Nicaragua, and of the surrounding country, which it is to be hoped will soon be published.

West Indian Survey.—Captain Barnett has recently been engaged in the survey of Antigua, Barbuda, and the Antilles, and Lieutenant Lawrance, hitherto second in command, will resume the survey of the West Indies as its chief.

Yucatan.—We learn that Dr. Heller, an Austrian naturalist, has just returned to New York, after passing two years and a half in exploring the provinces of Yucatan, Tabasco, Chiapas, and Oajaca. He has made some interesting collections, has studied the Maya language, and traversed Yucatan from Charupoton to Cape Catoche, and has made many discoveries respecting the early traditions of the Indians of Chiapas; he is about to publish the result of his discoveries.

SOUTH AMERICA.

New Granada.—Colonel Joaquin Acosta, to whose map of the republic of New Granada I alluded last year, has lately published at Paris an historical account of the discovery and colonization of New Granada in the sixteenth century. It is accompanied by a map, on which are laid down, in different colours, the routes of the various discoverers from Columbus to Robledo. It is chiefly compiled from older authors, both printed and in manuscript; the matter is put together in one consecutive narrative, omitting all the fabulous tales and empty declamations which they contain; it will be found to be full of interesting and original matter, and the catalogue of authorities, with remarks on their character and value, at the conclusion, will be most useful to those engaged in similar pursuits.

Colonel Acosta has also lately reprinted at Paris the '*Seminario di Bogotá,*' with several unpublished memoirs. This periodical also con-

tains some interesting papers on the geography of the ancient vice-royalty of New Granada. Colonel Acosta has lately returned to his own country, and is about to undertake a survey of the snowy and almost unknown mountainous group of Santa Martha.

A very interesting map of the Laguna di Titicaca and the valleys of Yuray, Callao, and Desaguadero, in Peru and Bolivia, has been lately published by Mr. Pentland from the results of his own observations. Mr. Pentland has accompanied this map with some observations to the French Academy, in which the following heights are given :—

Sorata . .	6,488 metres =	21,286 English feet.	
Illimani . .	6,456 ,, =	21,181 ,,	
Chimborazo	6,530 ,, =	21,424 ,,	

A subsequent communication states that the mountain of Aconcagua, formerly supposed to be a volcano, in the southern part of Chili, is, by the triangulation of Captain FitzRoy, 7071 metres, or 23,200 feet, above the sea, and consequently the highest point in the New World.

We have been informed that the American Government have ordered an astronomical mission to the South Sea, under Lieutenant Gilliss, United States Navy. Many of the expected results will undoubtedly prove available to geographical knowledge. The principal object of the expedition is to make such observations in Chili as, with a series of corresponding observations in Washington and in Europe, shall tend to correct or to confirm the solar parallax, as well as that of the inferior planets. It is expected that the operations will be continued from November 1849 to the summer of 1852, at the island of Chiloe, which is to be the chief station of the inquiry. The leisure intervals of time are to be filled up with every description of observation, astronomical, geographical, magnetic, meteorological, &c.; and Lieutenant Gilliss zealously invites questions from all quarters on the objects proposed.

Quito.—In the ‘Comptes Rendus’ (No. 10, March, 1849) is an interesting notice of a paper by M. Visse, respecting the position and arrangement of the erratic blocks of the Andes of Quito. The question of the origin of these blocks has always been one of great interest, not only to the geologist, but to the physical geographer. M. Visse disproves the idea of their having been thrown out from a crater during an eruption, and adopts the view of their being derived from the écroulement or breaking down of the escarpment of the overhanging mountain, by which the débris have been spread over the plains below. A MS. map of the Rio Esmeraldas, near which they were observed, accompanies the paper.

MISCELLANEOUS.

Hakluyt Society.—In addition to the works published by the Hakluyt Society mentioned last year, we owe to them the interesting account of the 'Discovery of the Empire of Guiana,' by Sir W. Raleigh. It is entitled 'The Discovery of the large, rich, and beautiful Empire of Guiana, with a relation of the great and golden City of Manoa (which the Spaniards call El Dorado), performed in the year 1595 by Sir W. Raleigh, Kt., reprinted from the edition of 1596, with some unpublished documents relative to that country.' It has been edited by Sir R. Schomburgk, and we may be permitted to express a hope that this Society will long continue its useful labours in making us better acquainted with the celebrated voyages of our early travellers. We are also indebted to them for having published an account of Sir Francis Drake and his voyages in 1595. It is printed from the original manuscript in the British Museum, by Thomas Maynarde, a personal friend of Sir F. Drake's. The volume also contains the Spanish account of Drake's attack on Puerto Rico, respecting which the editor, Mr. Cooley, says that it is amusing to observe the variance between the Spanish and English accounts of the same action, both written in good faith.

Lighthouses.—In the progress of geographical discovery, or of hydrographical knowledge, whatever tends to facilitate the work, or to ensure the safety of the inquirer is of the utmost value. Of the means to this important end few are more deserving of attention than the erection of lighthouses; the more dangerous the coast they give notice of, or the more stormy the seas in which they are erected, the greater is the credit and the skill of the architect who successfully overcomes his difficulties. I do not pretend however to enter into this question on this occasion; but there is one example of such complete success in overcoming obstacles of no ordinary character, and which at one time seemed absolutely insurmountable, and of which the interesting record has been lately published, that I should be doing injustice to conspicuous merit, as well as violence to my own feelings, were I not to remind you of it. I allude to that magnificent specimen of this description of building, the Skerryvore Lighthouse, lately erected by Mr. Alan Stephenson on the dangerous group of rocks off the island of Tyree, south of the Hebrides, and of which a full and detailed account has been published by Mr. Stephenson himself. To form any just idea of the difficulties and dangers experienced in this undertaking, the terrific storms to which the workmen were exposed, and the talent and gallantry by which all was overcome, the work itself must be perused.

With regard to the general question of lighthouses, I may state that much information respecting those on the coast of Scotland will be found in the Report to the Commissioners of the Northern Lighthouses, printed in the Appendix C. to the Second Report by the Commissioners appointed to inquire into Tidal Harbours, laid before Parliament Sess. 1847-8.

Meteorology.—The many interesting facts connected with this branch of geographical investigation have during the past year attracted more than usual attention at the hands of their observers. Not only have phenomena been more carefully attended to and registered, but the number of localities at which observations are made by private individuals is increased. This is of the utmost importance; for it is only after many series of observations made at various spots have been compared and contrasted with each other, that the almost mysterious and recondite laws by which these phenomena are regulated can be finally ascertained. I do not here propose to go into the details of this question, but must confine myself to a few observations on some of the principal points which have come under my notice. I would particularly allude to an ingenious application of one of the most remarkable discoveries of modern science, viz. the use of the electric telegraph, for the purpose of rapidly communicating reports of weather and of winds from different parts of England. Many of the railway companies are stated to have entered into the plan with spirit, and, if carried out, we may expect that meteorological conclusions of great value will be obtained, by enabling meteorologists to ascertain the laws of the progress of the great aerial currents, or even of those electric phenomena which so sensibly affect the conditions of our atmosphere. When we recollect that, according to Captain Carless's investigation of the great rotatory hurricane on the Malabar coast in 1847, notwithstanding the violent rapidity of the circular motion, the direct progress of the centre of the storm was not more than 12 to 15 miles per hour, we can at once see how the electric telegraph would outstrip the hurricane in its progress, and convey a salutary warning to the regions it was approaching. M. Quetelet has communicated to the Royal Academy of Sciences of Belgium some particulars relative to the arrangements in England, and he states that a series of analogous observations are already being made at Brussels, Ghent, Louvain, St. Frond, Liège, and Namur.

An interesting paper was read not long ago before the Royal Society by J. F. Miller, Esq., on the question of the fall of rain. It was called, 'Some Remarks on a Paper entitled "On the Depth of Rain which falls in the same localities at different altitudes in the hilly districts of Lancashire, Cheshire, &c., by S. C. Homersham."' One of

the most remarkable facts mentioned by Mr. Miller was this, that, if the receipts of the mountain-gauges be compared with the rain-fall in the valleys, it will be found that the quantity increases considerably up to 1900 feet, where it reaches a maximum, but that above this elevation the rain-fall rapidly decreases, until, at 2800 feet above the sea, the amount is very much less than in the surrounding valleys.

No where do these meteorological observations seem to be encouraged and kept up with more alacrity than in the Bombay Geographical Society. There the matter is taken up with a zeal that must produce the best results, and the numerous observatories established in different parts of the Presidency must ultimately secure to them a vast mass of valuable information, which is the more important on account of the peculiar configuration of the ground, where the precipitous Syhadree range opposes such a powerful barrier to the moisture-laden atmosphere driven up from the ocean. I have great pleasure in stating that much of this progress is owing to the exertions of Dr. Buist, secretary to the Bombay Geographical Society. I have also much satisfaction in announcing the progress which has at length been made by him in the preparation of the first series of tidal and meteorological observations undertaken at his suggestion at Aden. Dr. Buist deserves the greatest credit for his exertions, which have at length resulted in his overcoming the difficulties so long opposed to the success of this important object.

Aneroid Barometer.—Amongst the many discoveries of the last year there is perhaps none so likely to be of use to travellers in difficult and barbarous countries as that of the Aneroid barometer. All who have travelled in districts but imperfectly surveyed, or of great inequalities of surface, have been anxious to avail themselves of the assistance of barometers to ascertain the heights of different spots, and all have probably found that it was impossible long to protect their instruments against the many risks of breakage to which they were exposed. The discovery of this convenient and portable instrument at once obviates many of these dangers. Of course it can hardly be expected that the same accuracy can be obtained from such a complicated instrument, depending too on materials liable to be affected by a change of temperature, as from the common mountain barometer. It will, however, serve on most occasions to obtain useful approximate observations. And the advantages gained by its greater portability and convenience in rugged countries, or when everything must be transported on horseback, far outweigh for the general traveller the precarious chance of the greater accuracy of the mountain barometer, if it remains unbroken or the mercury does not escape.

CONCLUSION.

I have endeavoured in the preceding observations to lay before you a general view of the proceedings connected with our Society, and with the progress of the science of geography by which the past year has been distinguished. With few and slight exceptions, the result offers little of remarkable interest beyond the conviction of the steady progress of geographical knowledge in all the civilized regions of the Globe, as evidenced by the unusual number of maps, charts, atlases, and other geographical works being published in many countries, and particularly in England, France, Germany, and America. This has been mainly owing to the increased knowledge obtained almost from day to day of the exact configuration and relative bearings of different countries, coasts, and islands, by the many surveys now in operation. Each correction of the position of a town, or of the delineation of a coast, renders all previously existing maps and charts not only *pro tanto* valueless, but, except for the history of the science, positively mischievous. Hence, as our knowledge increases, the desire to possess the last new map spreads through society, and calls for the publication of new atlases and charts. The science of meteorology has also made rapid progress, and under the auspices of such men as Colonel Sykes, Colonel Sabine, and Professor Dove, we may not unreasonably look forward to a time when the laws by which atmospherical phenomena are regulated will be ascertained, and rendered as available to the pursuit of natural science as those of attraction or of gravity. That our own Society may not be behind hand in this universal progress, must be the sincere desire of us all; but to do this, we must be active and industrious, our numbers must be increased, our Journal should be enlarged, and its importance made to be felt wherever science is understood or geographical knowledge is appreciated.

And here I may perhaps be admitted, before I take my leave of the Chair, to throw out a few suggestions respecting the future prospects and management of our Society. Notwithstanding the strong desire felt by all who take any interest in the advance of geographical science, there exists much diversity of opinion as to the best means of obtaining the desired end. With all the object is the same, viz., the spread of geographical information in its most extended sense; this embraces not only an exact knowledge of the limits of countries, and of the physical features of different districts, but a careful search into the productions of different regions, whether in the animal, or vegetable, or mineral kingdom; a knowledge of those

natural phænomena connected with magnetism and electricity, so variously developed in different portions of the earth's surface; a careful investigation of the laws of meteorology, including those of winds and currents, and, in short, of everything connected with the physical development of nature on the surface of our globe. It also embraces the application of geographical science to the representation of statistical and political information, as well as to the elucidation of ethnology and philology.

There is, as I have said, a difference of opinion as to the means by which these objects are to be attained. While some would limit the province of geography to the strict rules of scientific investigation, others, on the contrary, are desirous of popularizing the subject by making it more directly subservient to the gratification of the curiosity of the many, or to the wants of commercial speculation. Both these extreme views would, in my opinion, be equally injurious. They whom I am now addressing will probably agree with me, that it is only by a proper combination of the two principles that geography can flourish; that it is only by a complete union of scientific truth with popular interest that we can hope to see the science of geography take that hold of the public mind in this country which shall ensure it the support necessary to secure its efficiency, and to maintain it in a powerful and healthy condition.

But I have already trespassed too long on your time and patience, and yet I cannot leave this Chair for the purpose of resigning it to the gallant officer whom you have this day elected as your President, without congratulating you on having secured the active assistance of one who, since the first day on which this Society was called into existence, has ever been one of its warmest and most zealous friends. Captain Smyth brings to your service great scientific attainments and habits of business. What he undertakes he does not do by halves; and I have no hesitation in foretelling a prosperous future to the Society under his auspices. At all events, I quit the Chair with the most sincere wishes for its future welfare and success, and an ardent hope that the application lately made to Her Majesty's Government may meet with a favourable reception. It only remains for me to return you my sincere thanks for the uniform kindness and consideration which, in the conscientious discharge of my office, I have met with at your hands, whether in the Council or at our evening meetings, and for that support which I have received in all suggestions and measures which it has been my duty or my lot to propose for the welfare and interest of this Society.